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New Estimates of Canadian Tariff Rates by Industry and Commodity

by

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Working papers are circulated, in the language of preparation, to make analytic work undertaken in the Department of Finance available to a wider readership. They have received only limited evaluation and do not necessarily reflect the views of the Department of Finance. Comments on the working paper are invited and may be sent to the authors.

ABSTRACT

This study is part of a series of technical papers that provide details of the Department of Finance's analysis of the impact of Canada-U.S. free trade. Results of the Department of Finance analysis were summarized in the document The Canada-U.S. Free Trade Agreement: An Economic Assessment. This paper presents estimates of pre- and post-Tokyo Round tariffs applicable to imports from the United States. Average tariff rates are calculated for 93 industries and 116 commodities using import and production data in a two-step weighting procedure. Three alternative weighting schemes are also calculated, with imports, consumption and production less exports replacing production as second stage weights.

This is the first study to present Canadian tariffs at such a disaggregated level. Further, the tariff rate estimates reported in this study are a better measure of the price protection provided to Canadian industry by tariffs because production weights are used at the earliest possible stage. The more common import weighting procedure tends to underestimate the degree of protection provided since the tariffs that are the most effective in restricting exports get the lowest weights.

The main findings of the research are:

(1) With the completion of Tokyo Round tariff reductions early in 1987, Canadian tariffs averaged 4.5 per cent, a decline of 30 per cent from their pre-Tokyo Round average. Despite these reductions, tariff protection provided to many industries remained significant. For example, industries with tariff rates greater than 7.5 per cent accounted for roughly 25 per cent of goods production in 1987, compared to 40 per cent in 1979.

(2) The use of production weights gives significantly different results than if import weights are used exclusively. The two-stage weighting scheme used in this study results in an average tariff of 4.5 per cent for 1987, compared to 3.2 per cent if only import weights are used. The use of different second-stage weights has a much smaller impact on the average tariff rate.

(3) Tariff rates exhibit significant variation across industries; in 1987 they ranged from almost zero to approximately 23 per cent in a 24-industry aggregation of the manufacturing sector. The variation increased as a result of the Tokyo Round tariff cuts.

(4) Since tariffs are not applied to services, the average tariff rates quoted above overstate the importance of tariffs to the Canadian economy as a whole. When service are taken into account, the degree of tariff protection provided to goods and services averaged 1.8 per cent in 1987.

RÉSUMÉ

Cette étude fait partie d'une série de rapports techniques qui documente l'analyse de l'impact du libre-échange canado-américain effectuée par le ministère des Finances. Les résultats de cette analyse sont résumés dans le document, Accord de libre-échange entre le Canada et les États-Unis: Une évaluation économique. Dans le présent rapport, les taux tarifaires d'avant et d'après le Tokyo Round applicables aux importations en provenance des États-Unis sont calculés pour 93 secteurs d'activités et 116 groupes de marchandises en utilisant les données sur les importations et la production selon une méthode de pondération en deux étapes. Les importations, la demande intérieure, de même que la production moins les exportations sont également utilisées comme méthodes de pondération alternatives de deuxième étape.

C'est la première étude qui fournit des barrières tarifaires canadiennes à un tel niveau de désagrégation. En outre, les estimations sont supérieures aux autres estimations disponibles parce que les données sur la production sont utilisées comme coefficients de pondération au niveau global à l'étape la plus avancée possible. La méthode courante de pondération des importations a tendance à sous-estimer le degré de protection accordé étant donné que les tarifs qui sont les plus efficaces pour restreindre les importations sont assortis des coefficients de pondération les plus faibles.

Les conclusions principales de cette étude sont les suivantes:

(1) Avec l'entrée en vigueur des dernières réductions tarifaires consenties dans le cadre du Tokyo Round, les tarifs canadiens s'élevaient à 4,5 pour cent au début de 1987, soit une diminution de 30 pour cent par rapport au niveau moyen d'avant le Tokyo Round. En dépit de ces réductions, la protection tarifaire s'avère encore significative pour plusieurs industries. Par exemple, les secteurs d'activités assujettis à des taux tarifaires supérieurs à 7,5 p. 100 représentaient près de 25 p. 100 de la production de biens en 1987 comparativement à 40 p. 100 en 1979.

(2) L'utilisation de la valeur de la production comme pondération donne des résultats sensiblement différents de ceux que l'on obtient si l'on pondère uniquement à partir de la valeur des importations. La méthode de pondération en deux étapes utilisée dans cette étude donne un tarif moyen de 4,5 p. 100 en 1987 comparativement à 3,2 p. 100 si l'on n'utilise que les importations comme base de pondération. Le choix de coefficients de pondération dans la deuxième étape a une influence beaucoup moins importante sur le tarif moyen.

(3) Les taux tarifaires varient sensiblement d'un secteur d'activités à l'autre; en 1987, ils variaient de presque zéro à près de 23 p. 100 dans un regroupement du secteur manufacturier en 24 industries. La variance des taux tarifaires a augmenté suite aux réductions consenties dans le cadre du Tokyo Round.

(4) Puisque les tarifs ne s'appliquent pas aux services, les taux tarifaires moyens, mentionnés ci-haut, exagèrent l'importance des tarifs pour l'ensemble de l'économie canadienne. Compte tenu des services, le degré de protection tarifaire accordé à la production de biens et de services était en moyenne de 1,8 p. 100 en 1987.

Contents

		Page
I	Introduction	1
II	Data and Methodology	2
III	Pre- and Post-Tokyo-Round Tariff Rates	9
IV	Comparison With Other Estimates	16
V	Conclusion	19
	References	21

Appendixes

A. Conversion of Specific Tariffs to Ad Valorem Equivalents

B. Tariff Rates Calculated Using Imports from all Countries as First-Stage Weights

C. Detailed Tariff Rates

Table C-1: Special Aggregation Industries

Table C-2: Special Aggregation Commodities

Table C-3: Input-Output "L"-Aggregation Industries

D. Tariff Rates by 1980 SIC Manufacturing Industries

E. Production, Exports, and Imports by Special Aggregation Industries and Commodities

F. Special Commodity Aggregation Expressed in Terms of Input-Output Parameters

G. Special Industry Aggregation Expressed in Terms of Input-Output Parameters and 1970 SIC Codes

H. 1980 SIC Manufacturing Industries Expressed in Terms of Input-Output Parameters

I Introduction

The Department of Finance has recently completed a major research project evaluating the overall impact of the Canada-U.S. Free Trade Agreement on the Canadian economy. The conclusions of this research were summarized in the document The Canada-U.S. Free Trade Agreement: An Economic Assessment. This paper is the first of a series of background studies providing details of the Department's analysis. It presents the pre- and post-Tokyo-Round tariff rates imposed by Canada on imports from the United States. A forthcoming study will compare current Canadian and U.S. tariff and non-tariff barriers to trade between the two countries.

Tariff rates by industry are usually calculated by aggregating detailed commodity tariff rates, of which there are approximately 3500, using imports as weights. However, this procedure tends to underestimate the degree of protection provided since the tariffs that are the most effective in restricting imports, which are generally the highest, get the lowest weights.

Aggregate tariffs developed using domestic production rather than import weights give a more accurate measure of the degree of protection provided by tariffs. However, since production data are not available for all 3500 tariff categories, use of import weights cannot be completely avoided. In this study pre- and post-Tokyo-Round tariff rates applicable to imports from the United States are calculated for industries and commodities using import and production data in a two-step weighting procedure. Two alternative weighting schemes were also calculated, with consumption and production less exports replacing production as second-stage weights.

The study is organized as follows: Section II describes the data and methodology used to estimate the pre- and post-Tokyo-Round tariff rates. The results are presented in Section III. Section IV compares the tariff estimates in this study with those of other researchers. Finally, Section V provides some concluding comments and presents the main findings of the study.

II Data and Methodology

A. Alternative Weighting Procedures

Until January 1988, Canada had approximately 3500 separate tariff commodity classifications, or tariff lines.[1] Because this is too great a level of detail for most forms of economic analysis, tariff lines are often aggregated into a smaller, more manageable number of relatively standard industry or commodity classifications. There are several weighting schemes that can be used to aggregate tariff line information to a manageable level of detail:

1) import weights;
2) production weights;
3) consumption weights.

Import weights are most commonly used to aggregate detailed tariff rates because of the ready availability of data and a comparatively simple methodology. However, it has been demonstrated that import weights provide distorted estimates of the degree of protection provided by tariffs. For example, if a tariff is high enough to exclude all imports, it would get a zero weight in an import-based aggregation procedure, which would clearly underestimate the protective effect of the tariff. On the other hand, the protective effect of tariffs would be overstated to the extent that relatively high tariffs are associated with significant import penetration. This could occur in industries in which production costs are much higher than those of foreign suppliers. It could also occur if the price elasticity of demand for imports is low relative to its domestic counterpart. However, since high tariffs are generally more effective in restricting imports than low tariffs, import weights will, on average, underestimate the degree of protection provided to commodities. The use of production weights avoids this bias towards low or otherwise ineffectual tariffs.

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1. On January 1, 1988 Canada adopted the Harmonized System of tariffs which more than doubled the number of tariff categories.

Import weights are also inappropriate for the calculation of average industry tariffs where an industry may produce a range of commodities and one commodity may be produced by several industries. Import data provides no information about the relative importance of a commodity within a given industry. Production data, on the other hand, does provide that information.[1]

However, the use of production-weighted tariffs may be misleading for two reasons. First, there is an aggregation problem that may cause production-weighted tariffs to understate the degree of protection provided to domestic industries. This occurs when an industry produces, or a commodity group includes, goods that are not exported and are protected by a tariff as well as exported goods that are not protected. Aggregating two such commodities together would give a lower average tariff than if production less exports or consumption were used as aggregation weights.

Second, the existence of tariffs on exportable goods may cause production weights to overstate the degree of protection provided by tariffs. The ability to export implies that an industry is internationally competitive and therefore does not require tariff protection. In such a case, production less exports may be more appropriate than production as weights. This conclusion is tempered by the observation that tariffs on exportable goods may reflect an attempt to protect regional markets from international competition.

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1. The conclusion that production weights provide the best estimates of the degree of protection provided by tariffs can be found in other studies. See, for instance, Béla and Carol Balassa, "Industrial Protection in the Developed Countries", The World Economy, June 1984, p. 196; James R. Melvin and Bruce W. Wilkinson, Effective Protection in the Canadian Economy, Economic Council of Canada, 1966; James R. Melvin, "A Weighting Problem in the Calculation of Effective Rates of Protection: A Comment", Economic Record, June 1972, p. 291; B.W. Wilkinson and K. Norrie, Effective Protection and the Return to Capital, Economic Council of Canada, 1975, p.84.

For example, domestic producers may be able to compete effectively in their own region and also be able to export but may suffer a transportation cost disadvantage and be unable to compete in other Canadian regional markets without tariff protection. In this case production weights continue to be the appropriate choice.

The selection of production or production less exports as weights also depends upon the focus of study. If, for example, tariffs are being used to assess the impact of tariff protection on prices and output in the domestic market, tariffs calculated using production less exports would be a more appropriate choice than production-weighted tariffs. On the other hand, if the study concentrated on the impact of tariffs on prices and output for the total economy, production-weighted tariffs would be more appropriate.

Another variant is to use consumption, defined as production less exports plus imports less re-exports, as weights. Relative to production weights, this approach increases the importance of imports and decreases the importance of exports. Aggregate tariffs calculated in this way would be most useful when analyzing impacts on purchasers' prices rather than producers' prices. In addition, since consumption-weighted tariffs indicate the extent that the domestic market is protected, their use may be more appropriate if the implications of tariff cuts are being assessed from the point of view of our trading partners.

The various weighting procedures are illustrated in Table 1.

Table 1
Illustration of Alternative Weighting Schemes

	Nominal Tariff	Production	Production less Exports	Consumption	Imports
Product 1	10%	100	100	150	50
Product 2	0%	100	50	50	0
Weighted Tariff		5%	6.7%	7.5%	10%

The above discussion suggests that although production weights give the best measure of the amount of protection provided to industries and commodities, aggregate tariffs developed using the alternative weighting procedures could be appropriate for some analytic work.[1] Consequently, estimates based on all four weighting procedures are presented in this study. However, since this paper focuses on the degree of protection provided by tariffs, the analysis will concentrate on production-weighted tariff rates.

Unfortunately, production and consumption data are not available at the level of detail needed to aggregate the 3,500 detailed tariff rates to a smaller, more useful number. It is necessary to use import data to aggregate to the level of the most detailed available production data. The most detailed and reliable set of production (and consumption) data is found in the Input-Output tables. The link between tariff line categories and the I-O data is indirect. Customs officers classify imports according to tariff line and the Commodity

1. The discussion of weighting schemes earlier in this paper is not intended to be a criticism of other studies that use only import data as weights. Those studies generally involve multi-country comparisons of tariff rates, and in such cases import weights, with their readily available data and relative ease of calculation, are the only practical weighting scheme.

Import Trade Classification (CITC)[1]. The latter classification can be linked to the "L" aggregation of the I-O tables using a concordance developed by Statistics Canada. Tariff line imports are used as aggregation weights when more than one rate applies to a given CITC category. Similarly, CITC imports are used as weights when a given I-O commodity consists of more than one CITC category.

The above procedure was used to aggregate statutory tariff rates to the 138 goods-producing industries and 519 commodities in the Input-Output "L" aggregation. Second stage aggregations to 116 commodities and the calculation of tariff rates for 93 industries were performed by Statistics Canada in order to respect confidentiality requirements. Subsequent aggregations were performed by the authors, using data presented in Appendix E.

For the calculation of pre-Tokyo-Round tariff rates, 1979 import values are available to be used as weights. On the other hand, the most recent import data available at the start of this project to calculate post-Tokyo-Round rates were for 1984. While 1984 data are preferable to 1979 data, the shift in weights muddies the comparison of tariff rates between those two years. There would be two reasons for differences in aggregate tariffs between these two years: the negotiated cuts and changes due to different weighting patterns. In order to assess the importance of the change in weights, 1987 tariffs

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1. Given the amount of detail it is not surprising that classification errors do occur. Some of these errors are corrected in the Statistics Canada revision process. A cursory inspection of the distribution of tariff line rates across I-O commodities indicated that there are numerous classification errors in the corrected data. In principle it would be possible to correct some of the obvious misallocations.

were calculated using both 1979 and 1984 import weights. It turns out that the use of more recent import data results in significantly lower tariffs when a strict import-weighting scheme is used but has a negligible effect when a two-stage procedure is used. The implication of this finding is that the use of out-of-date trading patterns in a strict import-weighting procedure will overestimate the level of aggregate tariff rates.

The choice of weighting procedure will be more or less important depending on the correlation between the tariff rates and the aggregation weights. If the correlation is always low the weighting scheme used to aggregate tariffs will be relatively unimportant but if the correlation is high the choice of weights will significantly affect the aggregate measures. For example, if tariff rates are the same for all components of a given category, which would imply zero correlation between rates and weights, then aggregate tariff rates would not change with the choice of weights. On the other hand, if low rates were associated with low weights under one scheme and high weights under another, then the choice of weights would be important.

A similar principle can be applied to assess the significance of the bias caused by the use of import weights in the first stage. There would obviously be no bias if all rates in a given category were the same. Unfortunately the variance of tariff line rates classified to a given I-O category is high: the coefficient of variation is, on average over the 519 I-O commodities, in the order of 75 per cent. This high variance suggests that changing the first-stage weights could have a substantial effect on the calculated tariff rates. However no firm conclusions can be drawn until alternative weights are specified.

B. Statutory Rates

The use of statutory rates raises a number of issues. First, statutory rates can be those actually applied or the maximum permitted under the GATT. The 1979 tariff rates used in this study are applied rates while for 1987 maximum or "bound" rates are used except when they exceed the actual rates applied in 1985. In these cases, which account for 2 per cent of imports, the 1987 bound rates were replaced by the 1985 applied rates. The 1987 bound rates include changes resulting from adjustments to procedures used to value imports for purposes of duty collection.

Second, statutory tariff rates are not always expressed in ad valorem form. They are sometimes expressed as a fixed dollar value per physical unit of the imported good (a specific rate), or as some combination of ad valorem and specific rates. Approximately 200 non-ad-valorem rates were converted to ad valorem equivalents using the methodology described in Appendix A. Note that the ad valorem equivalent of a specific rate declines as the price of the imported good rises.

Third, statutory rates vary by the source of imports; they may be general preferential, British preferential, general tariff or most favoured nation (MFN). This study focuses on the Canada/United States trading relationship so MFN statutory rates, which are applicable to imports from the United States, are aggregated using imports from the United States as first stage weights.[1] However, imports covered

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1. Tariff rates were also calculated using imports from all countries as first-stage weights; these are presented in Appendix B. Note that the results in Appendix B are based on MFN rates rather than the rates applicable to imports from a specific country. The bias caused by this procedure is uncertain in direction but is likely small given the importance of the United States in total imports.

by the Automotive Trade Products Agreement enter duty free rather than at the MFN rates. Other duty remission programs (and trade covered under the Defence Production Sharing Arrangement) are not captured in this study.

In summary, the tariff estimates reported in this paper are statutory, most favoured nation tariffs aggregated using imports from the United States and Canadian production data in a two-step weighting procedure. All non-ad-valorem tariffs are expressed as their ad-valorem equivalent. Finally, we have tried to use the rate actually applied in 1979 or 1987 but in some cases bound rates had to be used.

III Pre- and Post-Tokyo-Round Tariff Rates

The distribution of imports by tariff rate is shown in Chart 1. As can be seen, about 65 per cent of imports from the United States entered duty free in 1987 while approximately 25 per cent of imports were subject to a tariff of more than 7.5 per cent.

However, as was suggested above, such summary measures give a misleading impression of the degree of protection given to domestic production by tariffs. It is more appropriate to look at the distribution of domestic production of goods by tariff rate. This is shown in Chart 2. In 1987, approximately 20 per cent of commodity production were unprotected, but 25 per cent of goods production were protected by tariffs greater than 7.5 per cent. From 1979 to 1987 the percentage of commodity production protected by tariffs of 7.5 per cent and higher fell roughly 15 percentage points while the share of unprotected goods production was virtually unchanged.

CHART 1
DISTRIBUTION OF IMPORTS BY TARIFF RATE
cumulative

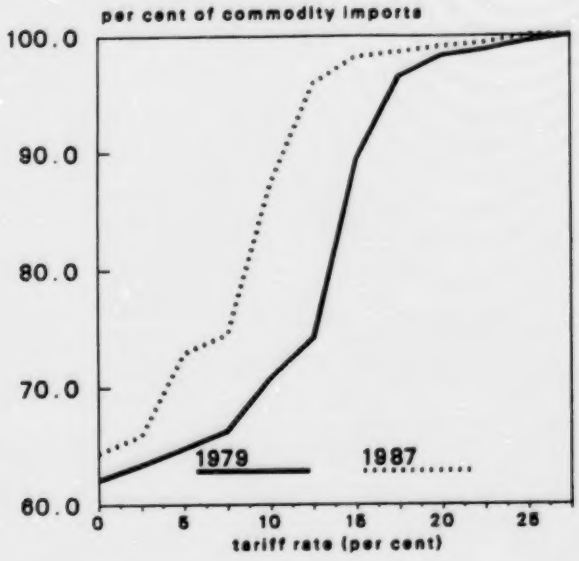
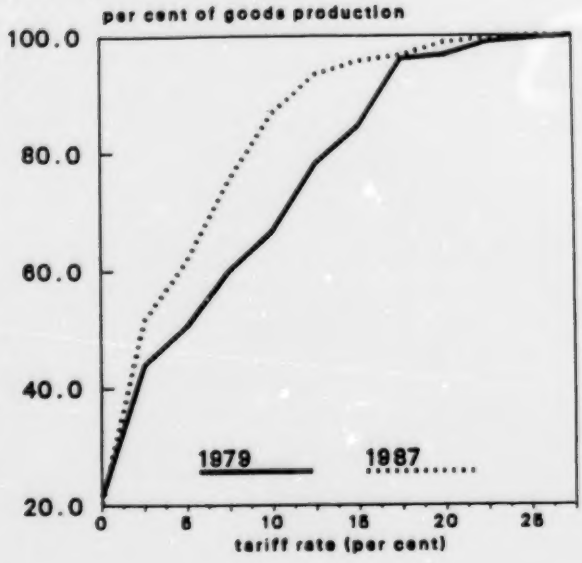


CHART 2
DISTRIBUTION OF GOODS PRODUCTION BY TARIFF RATE
cumulative



The production-weighted average tariff rate on all commodities including electricity declined from its pre-Tokyo-Round value of 6.7 to 4.6 per cent in 1987, when the Tokyo Round reductions were fully phased in. This represents a reduction of 31 per cent. A classification of imports by stage of processing (Table 2) indicates that tariffs are low on commodities with little value added and high on commodities with substantial value added. The Tokyo Round tariff reductions made this pattern marginally more pronounced: the ratio of tariffs on end products to the weighted average rate on all commodities is 1.2 in 1979 and 1.3 in 1987.

Table 2
Statutory Tariffs, by Commodity, 1979 and 1987[1]

Commodity	1979	1987
	(per cent)	
Crude Materials, Edible	4.2	3.6
Crude Materials, Inedible[2]	0.0	0.1
Fabricated Materials	7.0	4.5
End Products	8.3	6.0
Consumer End Products	9.5	7.4
Producer End Products	11.1	6.7
Transportation Products	3.6	2.6
Motor Vehicles	3.1	2.0
Aircraft	0.2	0.0
Other	12.5	9.9
Weighted Average	6.7	4.6

Source: Unpublished data from Statistics Canada and the Department of Finance.

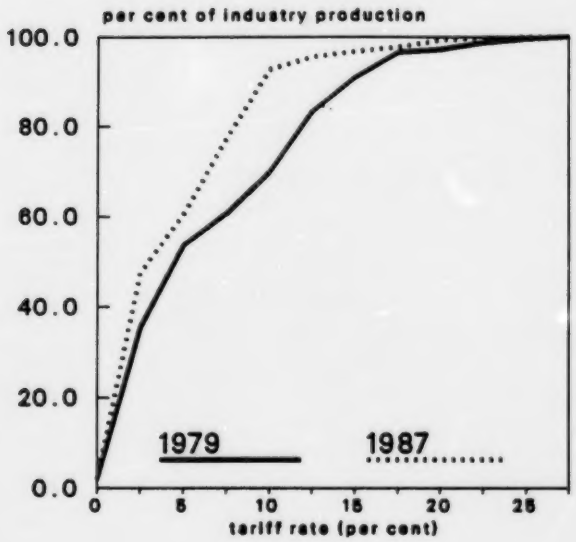
1. Calculated from tariff line rates using imports from the United States and production data as weights in a two-stage weighting procedure.
2. The rise from 1979 to 1987 reflects changes in the aggregation weights rather than an increase in detailed tariff rates.

Within the finished goods category, producer end products received significantly higher protection than consumer end products in 1979 but received marginally less protection by 1987. Transportation products, which are not included in consumer or producer end products, received the lowest rate of protection. This reflects the duty-free entry of imports of aircraft and of most, but not all, imports of motor vehicles and parts from the United States under the Automotive Products Trade Agreement.

The small rise in the tariff rate on crude materials from 1979 to 1987 primarily reflects shifting weights rather than changes in rates. If 1979 imports from the United States are used to weight pre- and post-Tokyo-Round tariff rates then the tariff rate on crude materials is unchanged from 1979 to 1987. However, some specific tariff rates do

rise from 1979 to 1987. As noted above, bound rates are used in 1987 except when they exceed rates actually applied in 1985. In these cases 1985 applied rates are used and they are occasionally higher than the 1979 applied rates.

CHART 3
DISTRIBUTION OF INDUSTRY PRODUCTION
BY TARIFF RATE
cumulative



Use of the Input-Output tables to allocate commodities to industries permits an exact calculation of tariff rates by industry. Chart 3 provides summary information on tariff rates by industry. Virtually all of the 93 industries examined have some tariff protection, although industries with tariffs under 2.5 per cent accounted for almost half of production. This was up about 12 percentage points from 1979. Industries with tariffs greater than 7.5 per cent accounted for 23 per cent of production in 1987 compared to 40 per cent in 1979.

Table 3 presents average tariff rates for 31 goods-producing industries (including electric power) using production, production less exports and consumption (production less exports plus imports less re-exports) as second-stage weights.[1] Also presented are the tariff estimates obtained using import weights exclusively. There are two striking features of the table:

- the results using a two-step aggregation procedure vary much less among themselves than in comparison with a strict import weighting procedure; and

- all four weighting procedures show significant variation in tariff rates across industries.

The weighted average tariff rate, either for manufacturing or all goods-producing industries, varies no more than 1 percentage point for a given year when production, production less exports or consumption are used as second stage weights. However, if import weights are used exclusively, these aggregate tariff rates are always significantly lower than when a two stage procedure is used.[2] The average tariff in manufacturing is lower by at least 1.4 percentage points and by as much as 2.6 percentage points under a strict import weighting procedure compared to a two stage weighting procedure. The corresponding figures for the all-industry average rate are 1.1 and 2.0 percentage points. In addition, the weighted average tariff rate is estimated to have declined roughly 30 per cent from 1979 to 1987

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1. Tariff rates for less aggregated industries are presented in Appendix C, which also includes tariff rates for detailed commodities.
2. In making this comparison it should be noted that import-weighted tariffs are not calculated making use of the Input-Output tables to allocate commodities to industries. This causes a small element of noncomparability with the other estimates.

TABLE 3
STATUTORY TARIFFS, BY INDUSTRY, 1979 AND 1987, VARIOUS WEIGHTING PROCEDURES (1)

INDUSTRY	PRODUCTION		PRODUCTION LESS EXPORTS		CONSUMPTION		IMPORTS	
	1979	1987	1979	1987	1979	1987	1979	1987
	(PER CENT)							
AGRICULTURE	3.8	3.0	3.9	3.1	3.9	3.1	3.3	2.9
FORESTRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FISHING AND TRAPPING	0.4	0.2	0.4	0.2	0.4	0.2	0.1	0.1
MINING	0.5	0.2	0.5	0.2	0.5	0.2	0.1	0.0
METAL MINES	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
MINERAL FUELS	0.6	0.2	0.5	0.3	0.5	0.3	0.0	0.0
NON-METAL MINES AND QUARRIES	0.4	0.4	0.5	0.3	0.6	0.3	0.6	0.4
MANUFACTURING								
FOOD AND BEVERAGE	6.2	5.2	6.4	5.5	6.2	5.3	4.5	4.7
TOBACCO	22.8	16.5	22.8	16.6	22.7	16.5	21.8	12.7
RUBBER AND PLASTICS	13.7	9.4	13.8	9.4	13.6	9.3	15.1	10.4
LEATHER	18.4	15.7	18.8	16.1	18.9	16.1	16.8	13.2
TEXTILES	12.5	11.4	12.7	11.6	12.8	11.7	11.2	7.4
KNITTING MILLS	25.3	22.7	25.3	22.7	25.4	22.7	24.3	22.8
CLOTHING	21.5	19.7	21.6	20.0	21.8	20.2	19.5	17.8
WOOD	4.2	2.5	5.1	3.0	5.0	3.0	3.8	2.3
FURNITURE AND FIXTURES	17.6	12.5	17.6	12.5	17.6	12.5	18.8	13.3
PAPER AND ALLIED PRODUCTS	6.8	3.5	10.9	6.1	10.5	5.9	10.1	5.6
PRINTING AND PUBLISHING	6.6	2.7	6.6	2.7	6.4	2.6	5.9	1.6
PRIMARY METALS	6.5	4.2	8.5	5.4	7.9	5.1	4.3	2.5
METAL FABRICATING	11.9	7.3	12.1	7.4	12.0	7.3	12.7	7.6
MACHINERY	8.9	4.9	9.6	5.6	8.6	4.6	8.1	4.1
TRANSPORTATION EQUIPMENT	3.2	2.3	4.6	3.6	3.0	2.2	1.4	0.8
MOTOR VEHICLES	2.2	1.8	2.4	1.9	2.3	1.9	1.3	1.1
MOTOR VEHICLE PARTS	2.4	1.1	2.6	1.2	2.0	1.0	1.1	0.5
AIRCRAFT AND PARTS	0.9	0.5	0.9	0.5	0.9	0.4	0.2	0.0
SHIPBUILDING	10.5	10.1	11.0	10.8	10.7	10.4	7.8	5.9
OTHER TRANSP. EQUIP.	12.7	8.5	12.8	9.1	12.7	9.1	13.5	11.2
ELECTRICAL PRODUCTS	12.0	7.8	12.5	8.1	11.7	7.3	11.1	5.7
NON-METALLIC MINERAL PRODUCTS	6.9	6.3	6.9	6.5	7.2	6.4	8.0	5.6
PETROLEUM AND COAL PRODUCTS	1.7	0.5	1.7	0.5	1.6	0.5	3.9	1.0
CHEMICALS AND CHEMICAL PRODUCT	8.5	6.0	8.6	6.0	8.4	5.9	8.2	5.7
MISCELLANEOUS MANUFACTURING	9.7	6.0	10.4	6.2	9.2	5.7	8.8	5.2
ELECTRIC POWER	14.7	8.6	14.5	8.5	14.5	8.5	17.5	10.2
WEIGHTED AVERAGE								
MANUFACTURING	7.5	5.2	8.5	6.0	8.2	5.7	6.1	3.4
GOODS PRODUCING	6.6	4.5	7.5	5.2	7.2	4.9	5.5	3.2
COEFFICIENT OF VARIATION (2)								
MANUFACTURING	63.0	75.8	59.3	71.9	61.4	74.2	65.0	79.8
GOODS PRODUCING	82.1	94.1	78.9	90.0	80.6	92.6	84.8	98.1

SOURCE: UNPUBLISHED DATA FROM STATISTICS CANADA AND THE DEPARTMENT OF FINANCE

1. IN THE FIRST THREE SETS, TARIFF LINE RATES ARE AGGREGATED USING IMPORTS FROM THE UNITED STATES AND PRODUCTION, PRODUCTION LESS IMPORTS OR CONSUMPTION IN A TWO STEP WEIGHTING PROCEDURE. THE LAST SET OF TARIFF RATES IS CALCULATED USING IMPORT WEIGHTS ONLY.
2. DEFINED USING THE UNWEIGHTED AVERAGE.

when a two-stage weighting procedure is used and 42 per cent when import weights are used exclusively. These large differences in levels and changes in average tariff rates underscore the importance of avoiding a strict import weighting scheme. Finally, the coefficient of variation is lower when a two-stage weighting scheme is used, which suggests that a misleading impression of the extent of tariff-induced distortions in relative prices may be created when a strict import weighting procedure is used.

Although a strict import weighting scheme results in tariff rates that are generally lower than when a two-stage procedure is used, the use of import weights alone occasionally results in higher tariff rates for some industries. Examples are rubber and plastics, furniture and fixtures, and other transportation equipment. This result may mean that tariffs in these industries are not high enough to restrict imports given their price elasticity and relative costs at home and abroad. It may also reflect the aggregation of heterogenous products in a single category as shown in Table 1.

Similarly, the choice of second-stage weights can have a significant impact on some relatively narrowly defined industries, even though more highly aggregated rates are not sensitive to the choice of second stage weights. For example, in paper and allied products the use of production weights results in significantly lower tariff rates than if production less exports or consumption are used as second-stage weights. This likely reflects low tariffs on exportable production. The choice of second-stage weights is also significant for primary metals.

In all weighting schemes, tariff rates exhibit considerable variation across industries; in 1987 they ranged from zero (forestry) to almost 23 per cent (knitting mills). The variance of tariff rates by industry is a rough indicator of the tariff-induced distortions in relative prices. It is of interest to note that the Tokyo Round reductions increased the inter-industry variability of tariffs, as measured by the coefficient of variation. The coefficient of variation

is more appropriate than the variance for this comparison since declines in the average tariff reduce the variance even if all tariffs are reduced proportionately. The coefficient of variation would not change given a proportionate cut in tariff rates.

Tariffs are not applied to the imports of services. Therefore, the tariff rates described above overstate the importance of tariff protection to the Canadian economy as a whole. Since services account for over 60 per cent of domestic production[1], the average tariff on goods and services falls to 1.8 per cent in 1987, down from the 4.5 per cent average tariff on goods production alone.

IV Comparison With Other Estimates

How do the aggregate tariff rates calculated in this study compare with estimates prepared by other researchers? The most frequently-cited study was prepared by the U.S. government's Office of the Special Representative for Trade Negotiations (STR) in 1979. The STR calculated, for selected countries, pre- and post-Tokyo-Round tariffs on industrial products using a strict import weighting of Most Favoured Nation (MFN) tariff line rates. Calculations were performed using imports from all countries and bilateral imports from selected countries. Consequently, the STR study comes close to duplicating the methodology used in this study to calculate strict import-weighted tariffs. A key difference is the use of 1976 imports as weights for pre- and post-Tokyo-Round rates compared to 1979 and 1984 imports in this study. In addition, different industry classifications are used in the two studies; consequently only selected industries and highly aggregated rates can be compared. The latter are presented in Table 4, as are aggregate tariff rates calculated by the Trade Policy Research Centre and the Economic Council of Canada.

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1. In 1981 and 1987, services accounted for 60.3 per cent of gross domestic product at factor cost.

Table 4

A Comparison of Tariff Rates on Industrial Products

	United States Imports		All-Country Imports	
	1979	1987	1979	1987
	(per cent)			
This Study[1]				
Production Weighted	7.5	5.2	7.7	5.4
Import Weighted	6.1	3.4 (4.1)[2]	7.4	4.6 (5.2)[2]
STR[3]				
applied rates	8.7	5.6	9.9	6.6
bound rates	10.8	6.2	11.7	7.1
Trade Policy Research Centre[4]			12.7	7.9
Economic Council[5]			7.8	

Source: See references.

1. Calculated using applied rates in 1979 and primarily bound rates in 1987. Import weights are developed from 1979 and 1984 data.
2. Calculated using 1979 import weights.
3. Weighted by 1976 imports. Date of applied rates not known.
4. Bound rates weighted by 1976 imports.
5. Implicit tariff rates calculated using 1978 data.

An inspection of Table 4 indicates that the import-weighted average tariff rates calculated in this study are less than those calculated by the STR. Part of the difference reflects shifts in import weights. The STR calculations are based on 1976 imports while import data from 1979 and 1984 are used in this study. Using imports from a more recent year results in lower average tariffs because the Tokyo Round reductions were not proportionate across all categories and imports of those commodities having the steeper cuts tend to increase the most. Some notion of the importance of shifting import weights can be obtained by comparing the 1987 average rates calculated in this study using 1984 imports as weights with those calculated using 1979 weights. The shift in import weights reduced the average tariff applicable to US imports 0.7 percentage points.

The treatment of specific tariffs likely contributes to the difference as well. The ad valorem equivalent (AVE) of a specific tariff declines over time in an inflationary environment. The methodology used in this study takes this factor into account; but it does not appear that any adjustment for inflation-induced declines in the AVE of specific tariffs was made in the STR study.

Table 4 also provides some information on the importance of distinguishing between bound and applied rates in 1979. Calculations by the STR indicate that applied rates were roughly 2 percentage points lower than bound rates in that year. The study by the Trade Policy Research Centre suggests the difference was even larger. The difference was projected to narrow significantly by 1987 but the gap was not expected to be eliminated since some 1979 applied rates were less than 1987 bound rates. Analysis undertaken in this study indicates that changes in applied rates since 1979 have virtually eliminated the gap: using 1985 applied rates that are less than 1987 bound rates has a negligible effect on the weighted average tariff.

The use of weights that reflect the pattern of imports from the United States or from all countries makes a significant difference in a strict import-weighting scheme, but has a negligible effect when a two step aggregation procedure is used. For example, in 1987 the average tariff is 3.4 per cent when imports from the United States are used exclusively as weights and 4.6 per cent when all-country imports are used. In contrast the production-weighted average rises from 5.2 per cent to 5.4 per cent when the first-stage aggregation weights shift from U.S. to all-country imports. (Tariff rates by industry calculated using all-country imports as weights are presented in Appendix B.)

The average tariff applicable to imports from the U.S. calculated using production data as second stage weights is lower than the average tariff calculated by the STR for 1979 and 1987, although the difference in 1987 is quite small. When all-country imports are used the production-weighted average tariffs calculated in this study are significantly less than those calculated by the STR.

Also included in Table 4 is a 1978 average tariff rate calculated by the Economic Council of Canada obtained by expressing duties collected as a percentage of imports less duties. This implicit tariff takes into account all tariff rates imposed by Canada, not just the MFN rate as in the other studies reported in the table. This approach gives a pre-Tokyo-Round average tariff rate that is marginally higher than calculated in this study using a strict import weighting procedure.

V Conclusion

The degree of protection provided to Canadian industry by tariffs is an important factor in assessing the economic impact of freer trade between Canada and the United States.

Unfortunately, existing estimates may give a misleading impression of the "height" of Canadian tariffs. Those estimates use import weights which tends to underestimate the degree of protection provided since tariffs that are effective in restricting imports get a low weight.

Aggregate measures of tariffs developed using domestic production as weights give a better measure of the degree of protection provided by tariffs to industries and commodities. The use of production weights avoids the import bias towards low or otherwise ineffectual tariffs. Production weights also provide the information to calculate average industry tariffs in cases where one industry produces more than one commodity or one commodity is produced by more than one industry.

However, since production data are not available for all 3500 tariff categories, use of import weights cannot be completely avoided. In this study pre- and post-Tokyo-Round MFN tariff rates are calculated for industries and commodities using import and production data in a two-step weighting procedure. Production less exports and

consumption are used as alternative second-stage weights. The use of import weights in the first stage likely causes a downward bias to the estimates presented in this study.

The main findings of the research are as follows:

(1) With the completion of Tokyo Round tariff reductions early in 1987, Canadian tariffs averaged 4.5 per cent, a decline of 30 per cent from their pre-Tokyo Round average. Despite these reductions, tariff protection provided to many industries remained significant. For example, industries with tariff rates greater than 7.5 per cent account for roughly 25 per cent of goods production in 1987, compared to 40 per cent in 1979.

(2) The use of production weights gives significantly different results than if import weights are used exclusively. The two-stage weighting scheme used in this study results in an average tariff of 4.5 per cent for 1987, compared to 3.2 per cent if only import weights are used. The choice of second-stage weights has a much smaller impact on the average tariff rate.

(3) Tariff rates exhibit significant variation across industries; in 1987 they ranged from almost zero to approximately 23 per cent in a 24-industry aggregation of the manufacturing sector. The variance of tariff rates across industries gives a rough indication of the distortions in relative prices caused by tariffs. The variance increased as a result of the Tokyo Round tariff cuts.

(4) Since tariffs are not applied to services, the average tariff rates quoted above overstate the importance of tariffs to the Canadian economy as a whole. When services are taken into account, the degree of tariff protection provided to goods and services averaged 1.8 per cent in 1987.

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APPENDIX A

Conversion of Specific Tariffs to Ad Valorem Equivalents

There are four types of statutory tariffs: ad valorem, specific, compound, and mixed. An ad valorem tariff is expressed as a fixed percentage of the price of an import. A specific tariff is a fixed dollar value per physical unit of the imported good. A compound tariff is a tariff that is a combination of ad valorem and specific components (e.g. $2.00 per kg + 11%) while a mixed tariff is either an ad valorem tariff or a specific tariff, depending upon the circumstances (e.g. $2.00 per kg or 11%, whichever is greater). In order to be useful for economic analysis, all four types of tariffs should be expressed on a common ad valorem equivalent basis. This appendix describes the methodology used to convert all non-ad-valorem tariffs to ad valorem equivalents.

Specific tariffs (either solely specific tariffs or the specific component of mixed or compound tariffs) were converted to ad valorem equivalents by dividing the specific tariff by the average price of imports corresponding to that tariff category. The average price of imports was approximated by dividing the total value of imports of a particular commodity by the physical volume of imports. Unfortunately, the import categories for value and volume at best only approximate the tariff item categories and, of course, were not available for 1987. Average import prices in 1987 were estimated by multiplying 1979 prices by the ratio of the projected price index of imported goods in 1987 to its actual value in 1979. The projected value of the price index was taken from the Department of Finance forecast used in the February 1986 Budget.

Given the data limitations, the calculations are quite straightforward. Three examples will best explain the process.

Specific tariff: Eggs in the Shell (1600-1)

a) 1979

- tariff rate = $0.035 per dozen
- value of imports = $8,671,000
- volume of imports = 11,886,910 dozen
- average price = 8671000/11886910
  = $0.729 per dozen
- ad valorem equivalent = 100*0.035/0.729
  = 4.8%

b) 1987

- tariff rate = $0.035 per dozen
- price change = 1.456 (P1987/P1979)
- average price = 0.729*1.456
  = $1.061 per dozen
- ad valorem equivalent = 100*0.035/1.061
  = 3.3%

Compound tariff: Buttons (65100-1)

a) 1979

- tariff rate = 15.0% + $0.05 per gross
- value of imports = $6,570,000
- volume of imports = 2,670,372 gross
- average price = 6570000/2670372
  = $2.46 per gross

- ad valorem equivalent = 15.0+100*0.05/2.46
  = 17.0%

b) 1987

- tariff rate = 12.6% + $0.05 per gross
- price change = 1.456 (P1987/P1979)
- average price = 2.46*1.456
  = $3.58 per gross
- ad valorem equivalent = 12.6+100*0.05/3.58
  = 14.0%

Mixed tariff: Advertising and Printed Matter (17800-1)

a) 1979

- tariff rate = greater of 25.0% or $0.10 per lb
- value of imports = $37,352,000
- volume of imports = 14,366,850 lb.
- average price = 37352000/14366850
  = $2.60 per lb.
- ad valorem equivalent = 24.0 or 100*0.10/2.60
  = 25.0 or 3.8
  = 25%

b) 1987

- tariff rate = 24.3% (ad valorem only in 1987)

APPENDIX B

TABLE B
TARIFF RATES BY INDUSTRY USING ALL-COUNTRY IMPORTS AS FIRST-STAGE WEIGHTS, 1979 AND 1987
VARIOUS WEIGHTING PROCEDURES (1)

	PRODUCTION		PRODUCTION LESS EXPORTS		CONSUMPTION		IMPORTS	
	1979	1987	1979	1987	1979	1987	1979	1987
	(PER CENT)							
AGRICULTURE	3.9	3.0	4.1	3.2	4.1	3.1	3.3	2.8
FORESTRY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FISHING AND TRAPPING	0.4	0.2	0.4	0.2	0.4	0.2	0.1	0.1
MINING	0.5	0.2	0.5	0.2	0.5	0.2	0.0	0.0
METAL MINES	0.3	0.1	0.6	0.1	0.4	0.1	0.0	0.0
MINERAL FUELS	0.6	0.2	0.5	0.2	0.5	0.2	0.0	0.0
NON-METAL MINES AND QUARRIES	0.5	0.4	0.6	0.4	0.6	0.4	0.6	0.4
MANUFACTURING	7.7	5.4	8.7	6.2	8.3	5.9	7.4	4.6
FOOD AND BEVERAGE	6.8	5.6	6.9	5.9	6.7	5.7	5.1	5.1
TOBACCO	22.1	16.3	22.1	16.4	22.0	16.3	18.4	12.2
RUBBER AND PLASTICS	13.9	9.6	14.0	9.6	13.9	9.6	16.0	10.9
LEATHER	18.5	15.9	18.9	16.3	18.9	16.3	21.3	18.3
TEXTILES	12.5	11.4	12.7	11.6	12.8	11.6	13.2	10.7
KNITTING MILLS	25.2	22.7	25.2	22.7	25.2	22.7	26.6	24.6
CLOTHING	21.9	20.3	21.9	20.6	22.2	20.9	23.2	22.5
WOOD	4.1	2.5	5.1	3.0	5.0	3.0	5.1	2.7
FURNITURE AND FIXTURES	17.6	12.5	17.7	12.6	17.6	12.5	19.0	13.7
PAPER AND ALLIED PRODUCTS	6.8	3.5	10.8	6.2	10.5	6.0	10.2	5.9
PRINTING AND PUBLISHING	6.7	2.7	6.7	2.7	6.4	2.5	5.9	1.6
PRIMARY METALS	6.4	4.3	8.2	5.6	7.7	5.2	5.2	3.1
METAL FABRICATING	12.1	7.5	12.3	7.6	12.1	7.5	12.4	7.8
MACHINERY	9.0	4.9	9.7	5.6	8.7	4.6	8.3	4.2
TRANSPORTATION EQUIPMENT	3.7	2.8	4.8	3.4	3.5	2.6	2.2	1.5
MOTOR VEHICLES	3.3	3.0	3.5	3.1	3.5	3.1	2.8	2.8
MOTOR VEHICLE PARTS	2.6	1.3	2.8	1.3	2.2	1.1	1.3	0.6
AIRCRAFT AND PARTS	0.9	0.5	1.0	0.5	0.9	0.5	0.3	0.0
SHIPBUILDING	7.6	4.3	7.8	4.4	7.6	4.4	8.1	5.7
OTHER TRANSP. EQUIP.	12.5	8.3	12.6	8.8	12.5	8.9	12.8	11.3
ELECTRICAL PRODUCTS	12.2	7.9	12.6	8.2	11.9	7.4	11.7	6.0
NON-METALLIC MINERAL PRODUCTS	7.3	6.6	7.2	6.7	7.7	6.7	10.5	7.4
PETROLEUM AND COAL PRODUCTS	1.6	0.5	1.5	0.5	1.5	0.5	3.0	0.6
CHEMICALS AND CHEMICAL PRODUCT	8.5	6.0	8.7	6.1	8.5	5.9	8.2	5.8
MISCELLANEOUS MANUFACTURING	9.6	6.3	10.2	6.5	9.1	6.0	9.4	6.1
UTILITIES (ELECTRIC,GAS, ETC.)	14.7	8.6	14.5	8.5	14.5	8.5	17.5	10.2
GOODS-PRODUCING	6.7	4.6	7.6	5.4	7.3	5.1	6.4	4.3

SOURCE: UNPUBLISHED DATA FROM STATISTICS CANADA AND THE DEPARTMENT OF FINANCE

1. IN THE FIRST THREE SETS DETAILED TARIFF LINE RATES ARE AGGREGATED USING IMPORTS AND PRODUCTION, PRODUCTION LESS EXPORTS, OR CONSUMPTION DATA IN A TWO STAGE WEIGHTING PROCEDURE. THE LAST SET IS CALCULATED USING IMPORT WEIGHTS EXCLUSIVELY.

APPENDIX C

Detailed Tariff Rates

This Appendix presents tariff rates by industry and commodity for special aggregations of the Input-Output "L" classification developed by Andrew Moroz of the Institute for Research on Public Policy. The aggregations were chosen to provide the maximum detail without encountering data confidentiality problems. The availability of production, export and import data for the special aggregations is useful because it allows some flexibility in developing alternative aggregations. The data required to develop alternative aggregations are presented in Appendix E.

Also included in the appendix are tariff rates by Input-Output "L"-Aggregation industries. Tariff rates at this level of detail can only be calculated using import weights exclusively given the constraints imposed by the availability of production and export data.

TABLE C-1
STATUTORY TARIFFS, BY INDUSTRY, 1979 AND 1987, VARIOUS WEIGHTING PROCEDURES (1)

INDUSTRY	PRODUCTION		PRODUCTION LESS EXPORTS		CONSUMPTION	
	1979	1987	1979	1987	1979	1987
	(PER CENT)					
AGRICULTURE	3.8	3.0	3.9	3.1	3.9	3.1
FORESTRY	0.0	0.0	0.0	0.0	0.0	0.0
FISHING AND HUNTING	0.4	0.2	0.4	0.2	0.4	0.2
BASE METAL MINES	0.1	0.1	0.2	0.1	0.1	0.1
URANIUM MINES	0.1	0.1	0.2	0.1	0.2	0.1
IRON MINES	0.1	0.1	0.1	0.1	0.1	0.1
COAL MINES	0.0	0.0	0.0	0.0	0.0	0.0
PETROLEUM AND GAS WELLS	0.7	0.3	0.7	0.3	0.6	0.3
ASBESTOS MINES (2)	0.4	0.6	0.6	0.5	0.7	0.5
OTHER NON-METAL MINES	0.4	0.3	0.5	0.3	0.5	0.3
SERVICES INCIDENTAL TO MINING	0.2	0.1	0.2	0.1	0.2	0.1
MEAT PRODUCTS	2.0	1.9	2.1	1.9	2.1	1.9
POULTRY PRODUCTS	11.3	10.8	11.3	10.8	11.3	10.8
FISH PRODUCTS	2.9	1.9	2.9	1.9	2.9	1.8
DAIRY PRODUCTS	10.9	7.9	11.0	8.0	10.9	8.0
FRUIT AND VEGETABLE PRODUCTS (2)	9.2	9.5	9.3	9.6	8.5	8.8
FEED	3.7	2.5	3.8	2.5	3.6	2.5
FLOUR & BREAKFAST CEREALS	4.0	3.3	3.9	3.3	4.0	3.4
BISCUIT & BAKERY PRODUCTS	5.8	5.0	5.8	5.0	5.8	5.0
CONFECTIONARY PRODUCTS	7.7	7.4	7.7	7.4	7.3	7.1
VEGETABLE OIL	5.9	5.0	5.9	5.0	5.5	4.7
SUGAR	4.8	2.0	4.9	2.0	4.4	1.8
MISCELLANEOUS FOOD	7.0	6.6	7.0	6.7	6.6	6.3
SOFT DRINK	14.9	14.3	14.9	14.3	14.7	14.2
DISTILLERIES & BREWERIES	5.5	4.1	5.5	4.1	5.5	4.1
WINERIES	5.1	3.5	5.1	3.5	5.1	3.4
TOBACCO & TOBACCO PRODUCTS	22.8	16.5	22.8	16.6	22.7	16.5
RUBBER FOOTWEAR	19.0	15.6	19.0	15.6	19.0	15.7
TIRE,TUBE & OTHER RUBBER PRODUCTS	13.6	9.3	13.6	9.3	13.5	9.2
LEATHER	3.1	2.0	2.9	1.8	4.0	2.5
LEATHER FOOTWEAR	23.3	20.7	23.3	20.7	23.3	20.7
OTHER LEATHER PRODUCTS	17.9	13.9	18.0	13.9	18.0	14.0
YARN & CLOTH	17.5	16.8	17.6	16.9	17.3	16.6
SYNTHETIC TEXTILES	13.5	12.0	13.6	12.1	13.5	12.0
CARPET,MAT & RUG	3.3	2.6	3.3	2.7	3.2	2.6
TEXTILE BAGS & CANVAS PRODUCTS	16.3	15.0	16.7	15.5	16.3	15.2
OTHER TEXTILES	11.8	10.6	12.1	10.8	11.9	10.6
HOSIERY AND KNITTING	25.3	22.7	25.3	22.7	25.4	22.7
CLOTHING	21.5	19.7	21.6	20.0	21.8	20.2
SAWMILLS	1.9	1.3	1.9	1.3	1.9	1.3
VENEER,PLYWOOD,SASH & DOOR	8.1	4.4	8.1	4.5	8.2	4.6
OTHER WOOD PRODUCTS	5.4	3.6	5.4	3.7	5.4	3.8
HOUSEHOLD FURNITURE	18.1	13.1	18.1	13.2	18.1	13.1
OTHER FURNITURE	17.1	11.8	17.1	11.7	17.1	11.7
PULP & PAPER	4.1	1.7	6.3	2.9	6.3	2.9
ASPHALT ROOFING PRODUCTS	5.7	1.9	8.8	3.6	8.8	3.7
PAPER BOX & BAGS	15.7	9.5	15.8	9.6	15.4	9.3
OTHER PAPER PRODUCTS	14.6	8.7	14.9	8.8	14.5	8.6
PRINTING & PUBLISHING	6.2	2.5	6.3	2.5	6.0	2.4
ENGRAVING & STEREOTYPING	12.7	5.8	12.8	5.9	12.3	5.5

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TABLE C-1..... CONTINUED
STATUTORY TARIFFS, BY INDUSTRY, 1979 AND 1987, VARIOUS WEIGHTING PROCEDURES (1)

INDUSTRY	PRODUCTION		PRODUCTION LESS EXPORTS		CONSUMPTION	
	1979	1987	1979	1987	1979	1987
	(PER CENT)					
IRON & STEEL FOUNDRIES	9.5	6.7	9.5	6.6	9.6	6.7
STEEL PIPE & TUBE	14.5	7.6	14.6	7.5	15.2	8.0
SMELTING & REFINING	2.7	1.5	5.2	2.9	3.7	2.1
ALUMINUM ROLLING,CASTING & EXTRUDING	3.0	1.4	3.8	2.0	3.8	2.1
COPPER & ALLOY ROLLING,CASTING & EXTRUDING	5.0	2.9	6.4	3.7	6.4	3.8
OTHER METAL ROLLING,CASTING & EXTRUDING	3.5	2.0	6.6	3.7	4.6	2.7
BOILER & PLATE	11.4	7.4	11.5	7.5	11.3	7.4
FABRICATED STRUCTURAL STEEL	12.9	8.3	13.2	8.4	12.7	8.2
METAL STAMPING	12.0	7.2	12.2	7.3	12.3	7.4
WIRE & WIRE PRODUCTS	11.1	6.6	11.4	6.8	11.5	6.8
HARDWARE & CUTLERY	11.4	6.5	11.7	6.6	11.9	6.7
OTHER METAL FABRICATING	11.5	6.9	11.6	7.0	11.6	7.0
AGRICULTURAL MACHINERY & EQUIPMENT	0.7	0.5	0.7	0.5	0.7	0.5
INDUSTRIAL MACHINERY & EQUIPMENT	10.2	6.2	10.6	6.4	10.2	6.2
COMMERICAL REFRIGERATION	11.2	4.2	11.7	5.6	11.2	4.1
AIRCRAFT & PARTS	0.9	0.5	0.9	0.5	0.9	0.4
MOTOR VEHICLES	2.2	1.8	2.4	1.9	2.3	1.9
MOTOR VEHICLE PARTS	2.4	1.1	2.6	1.2	2.0	1.0
SHIPBUILDING	10.5	10.1	11.0	10.8	10.7	10.4
OTHER TRANSPORTATION EQUIPMENT	12.7	8.5	12.8	9.1	12.7	9.1
SMALL ELECTRIC APPLIANCES	12.1	7.7	12.1	7.7	12.0	7.7
MAJOR ELECTRIC APPLIANCES,RADIO AND T.V.	14.0	8.7	14.1	8.8	13.7	8.5
COMMUNICATION EQUIPMENT	12.0	8.8	13.1	10.1	11.1	7.6
ELECTRICAL INDUSTRIAL EQUIPMENT	11.1	6.5	11.5	6.7	10.5	6.2
ELECTRIC WIRE & CABLE	13.8	8.5	13.9	8.5	13.8	8.5
OTHER ELECTRICAL PRODUCTS	9.8	5.9	10.4	6.2	9.8	5.8
CEMENT & LIME PRODUCTS	1.6	0.5	1.6	0.5	1.6	0.5
CONCRETE PRODUCTS (2)	4.6	8.5	4.4	8.5	4.5	8.5
CLAY,STONE & REFRACTORY PRODUCTS	8.7	5.4	8.8	5.4	8.8	5.5
GLASS & GLASS PRODUCTS	12.7	8.4	12.6	8.4	11.8	8.3
OTHER NON-METAL MINERAL PRODUCTS	10.1	6.0	10.5	6.2	10.1	6.1
PETROLEUM REFINERIES	1.6	0.5	1.6	0.5	1.6	0.5
OTHER PETROLEUM & COAL PRODUCTS	8.5	0.8	8.3	1.1	7.7	1.0
MIXED FERTILIZERS	0.3	0.2	0.3	0.2	0.3	0.2
PLASTIC & SYNTHETIC RESINS	9.7	7.5	9.7	7.5	9.7	7.5
PHARMACEUTICAL	5.5	4.4	5.5	4.4	5.5	4.4
PAINTS & VARNISH	13.1	9.0	13.1	9.0	13.1	9.0
SOAPS & CLEANING COMPOUNDS	11.6	8.4	11.5	8.4	11.5	8.3
TOILET PREPARATIONS	13.0	10.1	13.1	10.1	13.0	10.0
INDUSTRIAL & OTHER CHEMICAL PRODUCTS	7.7	5.1	7.6	5.0	7.5	4.9
SCIENTIFIC & PROFESSIONAL EQUIPMENT	6.9	4.0	7.4	4.1	6.2	3.8
LINOLEUM & COAT FABRIC AND MISC.	11.2	7.0	12.1	7.5	11.9	7.3
ELECTRIC POWER	16.9	9.8	16.9	9.8	16.9	9.8

SOURCE: UNPUBLISHED DATA FROM STATISTICS CANADA AND THE DEPARTMENT OF FINANCE

1. TARIFF LINE RATES ARE AGGREGATED USING IMPORTS FROM THE UNITED STATES AND PRODUCTION, PRODUCTION LESS EXPORTS, OR CONSUMPTION DATA IN A TWO-STAGE WEIGHTING PROCEDURE.

2. THE RISE FROM 1979 TO 1987 REFLECTS CHANGES IN AGGREGATION WEIGHTS RATHER THAN CHANGES IN DETAILED TARIFF RATES.

TABLE C-2
STATUTORY TARIFFS, BY COMMODITY, 1979 AND 1987, VARIOUS WEIGHTING PROCEDURES (1)

COMMODITY	PRODUCTION		PRODUCTION LESS EXPORTS		CONSUMPTION	
	1979	1987	1979	1987	1979	1987
			(PER CENT)			
LIVE ANIMALS	1.9	1.1	1.9	1.1	1.9	1.1
GRAIN	1.6	1.0	1.9	1.2	2.0	1.2
UNPROCESSED MILK	15.6	13.4	15.6	13.4	15.6	13.4
FRUITS & VEGETABLES	5.3	4.7	5.3	4.8	5.1	4.3
EGGS IN SHELLS	2.7	2.3	2.7	2.3	2.7	2.3
OTHER AGRICULTURAL PRODUCTS	0.8	0.7	1.5	1.3	1.3	1.1
SERVICES TO AGRICULTURE	0.0	0.0	0.0	0.0	0.0	0.0
FORESTRY PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.0
FISH LANDINGS	0.4	0.2	0.4	0.2	0.4	0.2
HUNTING & TRAPPING PRODUCTS	0.0	0.0	0.0	0.0	0.0	0.0
IRON ORE & CONCENTRATES	0.0	0.0	0.0	0.0	0.0	0.0
OTHER METAL ORES	0.0	0.0	0.0	0.0	0.0	0.0
COAL	0.0	0.0	0.0	0.0	0.0	0.0
CRUDE MINERAL OILS	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS (2)	0.0	0.6	0.0	0.6	0.0	0.6
NON-METAL MINERALS (2)	0.4	0.6	0.6	0.5	0.6	0.4
SERVICES TO MINING	0.0	0.0	0.0	0.0	0.0	0.0
MEAT PRODUCTS	1.9	1.8	1.9	1.8	1.9	1.8
POULTRY	12.1	11.5	12.1	11.5	12.1	11.5
MILK & CREAM	14.9	7.0	14.9	6.9	14.9	7.0
BUTTER (3)	12.8	13.5	12.8	13.5	12.8	13.5
CHEESE	2.3	2.0	2.3	2.0	2.3	2.0
OTHER DAIRY PRODUCTS	14.3	13.7	14.4	14.1	14.5	14.1
FISH PRODUCTS	2.5	1.3	2.5	1.3	2.5	1.3
FRUIT & VEGETABLE PRODUCTS (2)	9.6	10.0	9.7	10.1	8.8	9.2
FEEDS	3.7	2.5	3.8	2.5	3.7	2.4
FLOUR & MEAL	3.1	2.5	3.0	2.5	3.3	2.6
BREAKFAST CEREALS & BAKERY GOODS	6.1	5.2	6.0	5.2	6.1	5.2
SUGAR	4.8	1.9	4.9	2.0	4.4	1.8
OTHER FOOD & FOOD BY-PRODUCTS	7.7	7.4	7.7	7.4	7.3	7.0
SOFT DRINKS	16.2	15.6	16.2	15.6	16.1	15.5
DISTILLERY PRODUCTS	3.4	1.5	3.4	1.5	3.4	1.5
BREWERY PRODUCTS	6.6	5.4	6.6	5.4	6.6	5.4
WINERY PRODUCTS	5.1	3.5	5.1	3.5	5.1	3.5
TOBACCO	19.4	9.9	19.4	9.9	19.4	9.9
TOBACCO PRODUCTS	24.2	19.0	24.3	19.0	24.2	18.9
TIRES & TUBES	17.1	9.9	17.0	9.9	16.8	9.7
OTHER RUBBER AND PLASTIC PRODUCTS	15.5	11.6	15.5	11.6	15.5	11.6
LEATHER	2.5	1.4	2.2	1.2	3.4	1.9
LEATHER FOOTWEAR	25.0	22.5	25.0	22.5	25.0	22.5
OTHER LEATHER PRODUCTS	20.4	15.8	20.4	15.9	20.4	15.9
NATURAL MATERIALS YARN	12.3	9.7	12.4	9.8	9.5	7.4
MAN-MADE MATERIALS YARN	9.8	7.2	9.9	7.4	9.8	7.3
BROADWOVEN AND OTHER FABRICS (2)	20.2	20.4	20.1	20.4	20.2	20.3
KNITTED FABRICS	27.4	23.0	27.4	23.0	27.4	23.0
CARPET PRODUCTS	2.8	2.2	2.9	2.3	2.8	2.2
OTHER TEXTILE PRODUCTS	16.7	15.6	17.1	16.2	16.7	15.8
HOSIERY	20.3	19.3	20.3	19.3	20.3	19.3
KNITTED WEAR	27.3	24.9	27.3	24.9	27.3	24.9
CLOTHING & ACCESSORIES	21.4	19.6	21.4	19.9	21.7	20.2
LUMBER AND TIMBER	0.2	0.1	0.2	0.1	0.2	0.1
PLYWOOD & VENEER	11.4	3.9	11.4	3.9	11.4	3.9
OTHER WOOD FABRICATED PRODUCTS	6.6	4.5	6.5	4.6	6.6	4.7
HOUSEHOLD FURNITURE	19.4	14.1	19.5	14.2	19.5	14.2
OFFICE & OTHER FURNITURE	17.4	11.9	17.3	11.8	17.3	11.8
PULP (2)	0.0	0.1	0.0	0.1	0.0	0.1
NEWSPRINT & OTHER PAPER	5.6	2.0	9.2	4.0	9.3	4.1
PAPER PRODUCTS	15.9	9.5	16.1	9.6	15.6	9.4
NEWSPAPERS,MAGAZINES & PERIODICALS	0.3	0.0	0.3	0.0	0.3	0.0
ADVERTISING,PRINT MEDIA	0.0	0.0	0.0	0.0	0.0	0.0
OTHER PUBLISHING PRODUCTS	12.0	4.8	12.1	4.8	11.5	4.4
PIG IRON & STEEL (2)	1.7	2.0	0.5	1.2	1.2	1.5
STEEL CASTING BARS,ROLLS & PLATES	9.2	7.3	9.2	7.3	9.2	7.3
STRUCTURAL SHAPES & PRODUCTS	15.1	7.8	15.2	7.7	15.9	8.3
ALUMINUM PRODUCTS	2.3	0.9	3.0	1.5	3.2	1.7
COPPER PRODUCTS	4.8	2.8	6.2	3.6	6.3	3.7

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TABLE C-2..... CONTINUED
STATUTORY TARIFFS, BY COMMODITY, 1979 AND 1987, VARIOUS WEIGHTING PROCEDURES (1)

COMMODITY	PRODUCTION		PRODUCTION LESS EXPORTS		CONSUMPTION	
	1979	1987	1979	1987	1979	1987
			(PER CENT)			
OTHER NON-FERROUS METAL PRODUCTS	2.2	1.4	7.7	4.1	3.7	2.1
FABRICATED STRUCTURAL METAL PRODUCT	13.7	8.8	14.1	9.0	13.5	8.7
WIRE & WIRE PRODUCTS	11.1	6.9	11.2	7.0	11.1	6.9
HARDWARE & TOOL PRODUCTS	12.4	6.6	12.7	6.8	13.3	7.0
PLATES,TANKS & BOILERS	11.9	8.0	11.9	7.9	11.8	7.9
OTHER METAL FABRICATED PRODUCTS	12.2	7.4	12.2	7.3	12.4	7.4
AGRICULTURAL MACHINERY & EQUIPMENT	0.3	0.3	0.3	0.3	0.3	0.3
INDUSTRIAL MACHINERY & EQUIPMENT	10.6	6.4	11.0	6.6	10.5	6.4
COMMERICAL OFFICE & STORE EQUIPMENT	13.1	4.5	13.7	6.3	13.0	4.4
AIRCRAFT & AIRCRAFT PARTS	0.2	0.0	0.2	0.0	0.2	0.0
AIRCRAFT REPAIR	0.0	0.0	0.0	0.0	0.0	0.0
PASSENGER CARS (2)	0.0	0.5	0.0	0.5	0.0	0.5
COMMERCIAL VEHICLES	3.6	2.6	4.2	3.0	4.1	3.0
COMMERCIAL VEHICLE TRAILERS	17.2	12.5	17.2	12.5	17.3	12.5
MOTOR VEHICLE ENGINES,HARD. &PARTS	3.2	1.3	3.1	1.3	1.7	0.7
OTHER MOTOR VEHICLE ACCESS. & PARTS	1.2	0.5	1.5	0.5	1.2	0.5
RAILWAY ROLLING STOCK	15.4	8.7	15.1	9.5	15.3	9.7
SHIPS & SHIP PARTS (2)	16.5	18.1	17.5	19.4	16.9	18.6
SHIP REPAIRS	0.0	0.0	0.0	0.0	0.0	0.0
OTHER TRANSPORTATION EQUIPMENT (3)	13.0	13.2	14.0	13.5	13.1	13.3
SMALL ELECTRICAL APPLIANCES	17.3	11.2	17.3	11.2	17.2	11.2
LARGE ELECTRICAL APPLIANCES	16.8	11.0	16.8	11.0	16.3	10.8
TELEVISIONS,RADIOS & RECORD PLAYERS	11.3	5.8	11.3	5.8	11.3	5.8
COMMUNICATION EQUIPMENT	13.2	9.9	14.4	11.4	12.2	8.4
INDUSTRIAL ELECTRICAL EQUIPMENT	11.6	6.5	12.0	6.6	11.0	6.3
WIRE & CABLE	14.2	8.7	14.3	8.7	14.3	8.8
OTHER ELECTRIC PRODUCTS	11.7	7.0	11.7	7.0	11.5	6.9
CEMENT	1.8	0.4	1.8	0.4	1.8	0.4
LIME (2)	0.0	0.5	0.0	0.5	0.0	0.5
CONCRETE PRODUCTS (2)	4.7	8.9	4.6	9.0	4.6	9.0
CLAY PRODUCTS	11.9	7.7	12.0	7.7	12.7	8.1
REFRACTORY AND STONE PRODUCTS	4.9	2.7	5.1	2.8	4.2	2.4
GLASS & GLASS PRODUCTS	12.8	8.5	12.7	8.5	11.8	8.3
OTHER NON-METAL MINERAL PRODUCTS	10.4	6.1	10.9	6.2	10.5	6.1
GASOLINE	0.0	0.0	0.0	0.0	0.0	0.0
FUEL OIL	0.4	0.0	0.4	0.0	0.4	0.0
LUBRICATING OILS AND GREASE	13.0	8.9	13.0	8.9	13.0	8.9
PETROCHEMICAL FEED STOCKS	3.5	2.5	3.5	2.5	3.5	2.5
OTHER PETROLEUM & COAL PRODUCTS	8.7	0.6	8.5	0.9	7.9	0.8
FERTILIZERS	0.1	0.0	0.1	0.0	0.1	0.0
PAINTS & RELATED PRODUCTS	13.8	9.3	13.8	9.3	13.8	9.3
PLASTIC RESINS & BY-PRODUCTS	9.9	7.9	10.0	7.9	9.9	7.9
PHARMACEUTICALS	5.5	4.5	5.5	4.5	5.5	4.5
SOAPS & DETERGENTS	12.8	8.9	12.8	8.9	12.8	8.9
TOILET PREPARATIONS & COSMETICS	14.9	11.8	14.9	11.8	14.9	11.8
INDUSTRIAL CHEMICALS	6.8	4.2	6.7	3.9	6.9	4.1
OTHER CHEMICAL PRODUCTS	10.2	8.3	10.0	8.2	9.1	7.2
SCIENTIFIC EQUIPMENT	7.2	4.0	7.8	4.1	6.3	3.9
LINOLEUM & RELATED COATED FABRICS	21.5	16.9	22.1	17.3	21.9	17.1
OTHER MANUFACTURED PRODUCTS	12.2	7.0	13.3	7.6	13.3	7.5
ELECTRIC POWER	17.5	10.2	17.5	10.2	17.5	10.2

SOURCE: UNPUBLISHED DATA FROM STATISTICS CANADA AND THE DEPARTMENT OF FINANCE

1. TARIFF LINE RATES ARE AGGREGATED USING IMPORTS FROM THE UNITED STATES AND PRODUCTION, PRODUCTION LESS EXPORTS, OR CONSUMPTION DATA IN A TWO-STAGE WEIGHTING PROCEDURE.

2. THE RISE FROM 1979 TO 1987 REFLECTS CHANGES IN AGGREGATION WEIGHTS RATHER THAN CHANGES IN DETAILED TARIFF RATES.

3. THE RISE FROM 1979 REFLECTS AN INCREASE IN DETAILED TARIFF RATES.

TABLE C-3
STATUTORY TARIFFS,
BY INPUT-OUTPUT 'L' AGGREGATION INDUSTRY (1),
1979 AND 1987, IMPORTED-WEIGHTED (2)

INDUSTRY	1979	1987
AGRICULTURE	3.8	3.0
FORESTRY	0.0	0.0
FISHING, HUNTING & TRAPPING	0.3	0.2
GOLD MINES	0.1	0.1
URANIUM MINES	0.1	0.1
IRON MINES	0.1	0.0
BASE METAL & OTHER METAL MINES	0.1	0.1
COAL MINES	0.0	0.0
PETROLEUM & GAS WELLS	0.9	0.2
ASBESTOS MINES (3)	0.1	1.2
GYPSUM MINES	1.0	0.2
SALT MINES	0.1	0.1
OTHER NON-METAL MINES	0.6	0.3
QUARRIES & SAND PITS	0.6	0.3
SERVICES INCIDENTALTO MINING	0.1	0.1
SLAUGHTERING & MEAT PROCESSORS	1.8	1.8
POULTRY PROCESSORS	11.4	10.9
DAIRY	11.0	8.0
FISH PRODUCTS	3.0	2.0
FRUIT & VEGETABLE PROCESSING (3)	9.4	9.6
FEED	4.1	2.8
FLOUR & BREAKFAST CEREALS	4.4	4.0
BISCUIT	6.9	5.0
BAKERIES	4.3	3.5
CONFECTIONERY	11.2	10.8
SUGAR REFINERIES	6.0	2.5
VEGETABLE OIL MILLS	4.3	4.3
MISCELLANEOUS FOOD (3)	6.3	6.4
SOFT DRINK	14.9	14.3
DISTILLERIES	3.5	2.1
BREWERIES	6.5	5.4
WINERIES	5.0	3.4
LEAF TOBACCO PROCESSING	19.2	9.8
TOBACCO PRODUCTS	24.0	18.8
RUBBER FOOTWEAR	24.1	21.7
TIRE & TUBE	15.4	9.1
OTHER RUBBER	10.5	7.2
PLASTIC FABRICATORS, NES.	13.1	9.6
LEATHER TANNERIES	12.0	6.7
SHOE FACTORIES	23.8	21.3
LEATHER GLOVE FACTORIES	21.9	21.4
SMALL LEATHER GOODS	17.2	12.1
COTTON YARN & CLOTH MILLS	18.6	17.8
WOOL, YARN & CLOTH MILLS	17.5	15.3
SYNTHETIC TEXTILE MILLS	12.7	11.4
FIBRE PREPARING MILLS	10.7	9.1
THREAD MILLS	13.0	9.3
CORDAGE & TWINE	9.5	9.1
NARROW FABRIC MILLS	19.9	19.3
PRESSED & PUNCHED FELT MILLS	20.0	18.4

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TABLE C-3 ....CONTINUED
STATUTORY TARIFFS,
BY INPUT-OUTPUT 'L' AGGREGATION (1),
1979 AND 1987, IMPORTED-WEIGHTED (2)

	1979	1987
CARPET, MAT & RUG	2.1	1.6
TEXTILE DYEING & FINISHING	5.4	4.9
CANVAS PRODUCTS	18.5	17.5
COTTON & JUTE BAG	20.5	19.0
MISCELLANEOUS TEXTILE IND.	11.5	10.3
HOSIERY MILLS	20.2	19.2
OTHER KNITTING MILLS	26.7	23.5
CLOTHING INDUSTRIES	22.1	20.2
SAWMILLS	0.4	0.2
VENEER & PLYWOOD MILLS	10.4	3.7
SASH & DOOR & PLANING MILLS	11.0	8.0
WOODEN BOX FACTORIES	10.5	6.0
COFFIN & CASKET	14.9	14.2
MISCELLANEOUS WOOD	5.0	2.3
HOUSEHOLD FURNITURE	17.6	12.8
OFFICE FURNITURE	17.6	12.7
OTHER FURNITURE	16.9	11.4
ELECTRIC LAMP & SHADE	15.9	9.4
PULP & PAPER	3.9	1.6
ASPHALT AND RELATED PRODUCTS	12.1	6.5
PAPER BOX & BAG	16.4	9.9
OTHER PAPER CONVERTERS	13.8	8.0
PRINTING & PUBLISHING	6.2	2.4
ENGRAVING, STEREOTYPING IND.	11.9	8.0
IRON & STEEL	7.7	6.0
STEEL PIPE & TUBE MILLS	4.6	3.5
IRON FOUNDRIES	8.7	5.3
ALUMINUM SMELTING & REFINING	1.8	0.4
OTHER SMELTING & REFINING	1.2	0.8
ALUMINUM ROLLING & EXTRUDING	4.4	2.6
COPPER & ALLOY ROLLING	9.4	5.5
METAL CASTING & EXTRUDING NES	5.3	2.9
BOILER & PLATE WORKS	12.1	7.9
FABRICATED STRUCT. METAL	12.8	8.5
ORNAMENTAL & ARCH. METAL	15.9	9.6
METAL STAMP. PRESS. & COAT.	12.5	7.6
WIRE & WIRE PRODUCTS	9.3	5.6
HARDWARE TOOL & CUTLERY	13.3	7.6
HEATING EQUIPMENT	16.5	10.2
MACHINE SHOPS	4.1	2.6
MISC. METAL FABRICATING	12.1	7.7
AGRICULTURAL IMPLEMENT	0.8	0.6
MISC. MACHINERY & EQUIP.	10.1	6.2
COMM. REFRIG & AIR COND.	13.5	8.2
OFFICE & STORE MACHINERY	10.2	2.7
AIRCRAFT & PARTS	0.7	0.3
MOTOR VEHICLE	1.2	1.1
TRUCK BODY & TRAILER	13.9	8.6
MOTOR VEH. PTS & ACCESS.	1.7	0.8
RAILROAD ROLLING STOCK	12.7	7.4
SHIPBUILDING & REPAIR	10.3	10.3

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TABLE C-3 ....CONCLUDED
STATUTORY TARIFFS,
BY INPUT-OUTPUT 'L' AGGREGATION INDUSTRY (1),
1979 AND 1987, IMPORTED-WEIGHTED (2)

INDUSTRY	1979	1987
MISC. TRANSP. EQUIP.	12.3	11.9
SMALL ELECTRICAL APPLIANCES	12.7	8.2
MAJOR ELECTRICAL APPLIANCES	16.7	10.7
RADIO & TELEVISION RECEIVERS	10.5	5.1
COMMUNICATIONS EQUIPMENT MFGRS	11.7	8.6
ELECT. IND. EQUIP.	12.1	6.6
BATTERY	8.1	5.3
ELECTRIC WIRE & CABLE	14.0	8.6
MISC. ELECT. PRODUCTS	11.7	6.8
CEMENT	1.8	0.4
LIME (3)	0.1	0.5
CONCRETE PRODUCTS	10.9	6.9
READY-MIX CONCRETE (3)	0.8	9.4
CLAY PRODUCTS	10.6	6.8
REFRACTORIES	3.2	2.0
STONE PRODUCTS	6.6	3.9
OTHER NON-METALLIC PRODUCTS	10.7	6.0
GLASS & GLASS PRODUCTS	13.7	9.0
ABRASIVES	7.8	5.6
PETROLEUM REFINERIES	1.5	0.5
OTHER PETRO & COAL PROD.	5.1	2.0
MFGRS. OF MIXED FERTILIZERS	0.1	0.0
MFGRS. OF PLAST. & SYNTH. RES.	9.9	7.7
MFGRS. OF PHARM. & MEDICINES	5.4	4.3
PAINT & VARNISH MFGRS.	13.2	9.0
MFGRS. OF SOAP & CLEANING COMP	12.3	8.8
MFGRS. OF TOILET PREPARATIONS	13.4	10.3
MFGRS. OF INDUSTRIAL CHEMICALS	7.0	4.4
OTHER CHEMICALS	9.5	6.9
SCIENT. & PROF. EQUIP.	7.2	3.9
JEWELRY & SILVERWARE	7.1	3.3
BROOM BRUSH & MOPS	18.1	11.3
SPORTING GOODS & TOYS	14.7	8.7
LINOLEUM & COATED FABRICS	18.4	14.2
SIGNS & DISPLAYS	12.3	8.2
MISC. MANUFACTURING	11.9	7.1
ELECTRIC POWER	16.8	9.8

SOURCE: UNPUBLISHED DATA FROM STATISTICS CANADA
AND THE DEPARTMENT OF FINANCE

1. DUE TO MINOR CHANGES IN METHODOLOGY, THE TARIFF ESTIMATES IN THIS TABLE DIFFER SLIGHTLY FROM ESTIMATES APPEARING IN OTHER TABLES.

2. DETAILED TARIFF LINE RATES ARE AGGREGATED USING IMPORTS FROM THE UNITED STATES AS WEIGHTS.

3. THE RISE FROM 1979 TO 1987 REFLECTS CHANGES IN AGGREGATION WEIGHTS RATHER THAN IN DETAILED TARIFF RATES.

APPENDIX D

TABLE D
STATUTORY TARIFFS, BY SELECTED 1980 SIC MANUFACTURING INDUSTRY, 1979 AND 1987, VARIOUS WEIGHTING PROCEDURES(1)

INDUSTRY	PRODUCTION		PRODUCTION LESS EXPORTS		CONSUMPTION	
	1979	1987	1979	1987	1979	1987
	(PER CENT)					
MEAT AND POULTRY	3.2	3.0	3.2	3.1	3.3	3.1
FISH	2.9	1.9	2.9	1.9	2.9	1.8
FRUIT AND VEGETABLE (2)	9.2	9.5	9.3	9.6	8.5	8.8
DAIRY	10.9	7.9	11.0	8.0	10.9	8.0
FLOUR, PREPARED CERAL, FOOD AND FEED	3.8	2.8	3.8	2.8	3.8	2.7
VEGETABLE OIL MILLS	5.9	5.0	5.9	5.0	5.5	4.7
BAKERY	5.8	5.0	5.8	5.0	5.8	5.0
SUGAR AND SUGAR CONFECTIONERY	6.3	4.8	6.4	4.8	5.9	4.5
OTHER FOOD	7.0	6.6	7.0	6.7	6.6	6.3
SOFT DRINK	14.9	14.3	14.9	14.3	14.7	14.2
DISTILLERY	3.6	1.7	3.6	1.7	3.6	1.7
BREWERY	6.5	5.4	6.5	5.4	6.5	5.4
WINE	5.1	3.5	5.1	3.5	5.1	3.4
LEAF TOBACCO	19.4	10.0	19.4	10.0	19.4	10.0
TOBACCO	23.9	18.7	24.0	18.8	23.9	18.7
TIRE AND TUBE	15.7	9.3	15.7	9.3	15.5	9.2
RUBBER HOSE AND BELTING	19.0	15.6	19.0	15.6	19.0	15.7
OTHER RUBBER	11.8	8.6	11.9	8.6	11.8	8.6
PLASTIC	13.0	9.4	13.2	9.5	13.1	9.5
LEATHER AND ALLIED	18.4	15.7	18.4	15.8	18.6	15.9
MAN-MADE FIBRE AND FILAMENT YARN	13.5	12.0	13.6	12.1	13.5	12.0
SPUN YARN AND WOVEN CLOTH	17.5	16.8	17.6	16.9	17.3	16.6
NATURAL FIBRES PROCESSING AND FELT	8.0	7.3	8.1	7.4	7.9	7.3
CARPET, MAT AND RUG	3.3	2.6	3.3	2.7	3.2	2.6
CANVAS AND RELATED	16.3	15.2	16.7	15.6	16.4	15.4
OTHER TEXTILE	12.1	10.8	12.4	11.1	12.2	10.9
CLOTHING	22.3	20.3	22.3	20.5	22.5	20.7
SAWMILL, PLANING AND SHINGLE MILL	1.9	1.3	1.9	1.3	1.9	1.3
VENEER AND PLYWOOD	10.6	3.8	10.7	3.9	10.7	3.9
SASH, DOOR AND OTHER MILLWORK	6.9	4.7	6.9	4.8	7.0	4.9
WOODEN BOX AND PALLET	6.1	4.1	6.1	4.2	6.1	4.3
COFFIN AND CASKET	6.4	4.4	6.4	4.5	6.5	4.6
OTHER WOOD	5.1	3.4	5.0	3.5	5.1	3.6
HOUSEHOLD FURNITURE	18.1	13.1	18.1	13.2	18.1	13.1
OFFICE FURNITURE	17.2	11.9	17.2	11.8	17.2	11.8
OTHER FURNITURE	17.0	11.8	17.0	11.7	17.0	11.7
PULP AND PAPER	4.1	1.7	6.3	2.9	6.3	2.9
ASPHALT ROOFING	5.7	1.9	8.8	3.6	8.8	3.7
PAPER BOX AND BAG	15.7	9.5	15.8	9.6	15.4	9.3
OTHER CONVERTED PAPER	14.6	8.7	14.9	8.8	14.5	8.6
COMMERCIAL PRINTING	6.2	2.5	6.3	2.5	6.0	2.4
PLATEMAKING, TYPESETTING AND BINDERY	12.7	5.8	12.8	5.9	12.3	5.5
PRIMARY STEEL	9.2	6.7	9.2	6.6	9.3	6.7
STEEL PIPE AND TUBE	14.5	7.6	14.6	7.5	15.2	8.0
IRON FOUNDRIES	13.3	6.9	13.4	6.8	13.9	7.2
NON-FERROUS METAL SMELTING AND REFINING	2.7	1.5	5.2	2.9	3.7	2.1
ALUMINUM ROLLING, CASTING AND EXTRUDING	3.0	1.4	3.8	2.0	3.8	2.1
COPPER ROLLING, CASTING AND EXTRUDING	5.0	2.9	6.4	3.7	6.4	3.8
OTHER ROLLED, CAST AND EXTRUDED NON-FERROUS METAL	3.5	2.0	6.6	3.7	4.6	2.7
POWER BOILER AND HEAT EXCHANGE	11.4	7.4	11.5	7.5	11.3	7.4
FABRICATED STRUCTURAL METAL	12.7	8.2	13.0	8.4	12.5	8.1
ORNAMENTAL AND ARCHITECTURAL METAL	13.1	8.4	13.4	8.5	12.9	8.3
STAMPED, PRESSED AND COATED METAL	12.0	7.2	12.2	7.3	12.3	7.4
WIRE AND WIRE PRODUCTS	11.1	6.6	11.4	6.8	11.5	6.8

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APPENDIX D

TABLE D ....CONCLUDED
STATUTORY TARIFFS, BY SELECTED 1980 SIC MANUFACTURING INDUSTRY, 1979 AND 1987, VARIOUS WEIGHTING PROCEDURES(1)

INDUSTRY	PRODUCTION		PRODUCTION LESS EXPORTS		CONSUMPTION	
	1979	1987	1979	1987	1979	1987
	(PER CENT)					
HARDWARE, TOOL AND CUTLERY	11.4	6.5	11.7	6.6	11.9	6.7
HEATING EQUIPMENT	12.4	7.3	12.5	7.5	12.5	7.3
MACHINE SHOP	9.9	6.0	10.0	6.0	9.7	5.9
OTHER METAL FABRICATING	11.9	7.2	12.1	7.3	12.2	7.3
AGRICULTURAL IMPLEMENT	.7	.5	.7	.5	.7	.5
COMMERCIAL REFRIGERATION AND AIR CONDITIONING	12.4	4.7	12.9	6.2	12.4	4.6
OTHER MACHINERY AND EQUIPMENT	10.2	6.2	10.6	6.4	10.2	6.2
AIRCRAFT AND PARTS	.9	.5	.9	.5	.9	.4
MOTOR VEHICLE	1.5	1.3	1.7	1.4	1.7	1.4
TRUCK AND BUS BODY AND TRAILER	10.3	7.1	10.3	7.1	9.9	7.0
MOTOR VEHICLE PARTS AND ACCESSORIES	2.4	1.1	2.6	1.2	2.0	1.0
RAILWAY ROLLING STOCK	13.1	7.5	12.9	8.1	13.1	8.3
SHIPBUILDING AND REPAIR	10.5	10.1	11.0	10.8	10.7	10.4
OTHER TRANSPORTATION EQUIPMENT	11.5	11.4	12.3	11.8	11.6	11.5
SMALL ELECTRICAL APPLIANCE	12.1	7.7	12.1	7.7	12.0	7.7
MAJOR APPLIANCE	15.9	10.3	15.9	10.3	15.5	10.1
ELECTRIC LIGHTING	10.1	6.2	10.8	6.5	10.1	6.1
RECORD PLAYER, RADIO AND TELEVISION RECEIVER	10.4	5.5	10.6	5.8	10.4	5.4
COMMUNICATION AND OTHER ELECTRONIC EQUIPMENT	12.0	8.8	13.1	10.1	11.1	7.6
OFFICE, STORE AND BUSINESS MACHINE	10.9	4.1	11.4	5.5	10.9	4.0
ELECTRICAL INDUSTRIAL EQUIPMENT	11.1	6.5	11.5	6.7	10.5	6.2
COMMUNICATIONS AND ENERGY WIRE AND CABLE	13.8	8.5	13.9	8.5	13.8	8.5
OTHER ELECTRICAL PRODUCTS	10.1	6.0	10.1	6.0	10.0	6.0
CLAY	11.1	7.2	11.2	7.2	11.8	7.6
HYDRAULIC CEMENT	1.9	.4	1.9	.5	1.9	.4
CONCRETE (2)	4.7	8.7	4.5	8.7	4.5	8.7
READY-MIX CONCRETE (2)	4.5	8.4	4.4	8.4	4.4	8.4
GLASS AND GLASS PRODUCTS	12.7	8.4	12.6	8.4	11.8	8.3
ABRASIVES	10.1	5.9	10.6	6.1	10.3	6.0
LIME	.1	.6	.1	.5	.1	.5
OTHER NON-METALLIC MINERAL	9.2	5.5	9.6	5.7	9.2	5.5
REFINED PETROLEUM PRODUCTS	1.6	.5	1.6	.5	1.6	.5
OTHER PETROLEUM AND COAL PRODUCTS	8.5	.8	8.3	1.1	7.7	1.0
INDUSTRIAL CHEMICALS INDUSTRIES N.E.C.	6.9	4.3	6.8	4.1	6.9	4.2
AGRICULTURAL CHEMICAL	.3	.2	.3	.2	.3	.2
PLASTIC AND SYNTHETIC RESIN	9.7	7.5	9.7	7.5	9.7	7.5
PHARMACEUTICAL AND MEDICINE	5.5	4.4	5.5	4.4	5.5	4.4
PAINT AND VARNISH	13.1	9.0	13.1	9.0	13.1	9.0
SOAP AND CLEANING COMPOUNDS	.0	.0	.0	.0	.0	.0
TOILET PREPARATIONS	13.0	10.1	13.1	10.1	13.0	10.0
OTHER CHEMICAL PRODUCTS	9.9	7.5	9.8	7.4	9.2	6.8
SCIENTIFIC AND PROFESSIONAL EQUIPMENT	6.9	4.0	7.4	4.1	6.2	3.8
JEWELLERY AND PRECIOUS METAL	6.5	3.8	7.9	4.5	7.2	4.1
SPORTING GOODS AND TOY	11.6	7.0	12.5	7.5	12.5	7.4
SIGN AND DISPLAY	11.4	6.7	12.3	7.2	12.3	7.1
OTHER MANUFACTURED PRODUCTS	14.0	9.2	14.6	9.6	14.5	9.5

SOURCE: UNPUBLISHED DATA FROM STATISTICS CANADA AND THE DEPARTMENT OF FINANCE

1. TARIFF LINE RATES ARE AGGREGATED USING IMPORTS FROM THE UNITED STATES AND PRODUCTION, PRODUCTION LESS EXPORTS, OR CONSUMPTION DATA IN A TWO-STAGE WEIGHTING PROCEDURE.

2. THE RISE FROM 1979 TO 1987 REFLECTS CHANGES IN THE AGGREGATION WEIGHTS RATHER THAN AN INCREASE IN TARIFF RATES.

TABLE E-1
PRODUCTION, EXPORTS, RE-EXPORTS AND IMPORTS BY INDUSTRY, 1981

INDUSTRY	PRODUCTION	EXPORTS	REEXPORTS	IMPORTS
		(THOUSANDS OF DOLLARS)		
AGRICULTURE	18700715	5493480	24882	1710764
FORESTRY	4585034	105155	336	91181
FISHING AND HUNTING	927837	239419	4539	176446
BASE METAL MINES	4391771	2715084	4563	1347588
URANIUM MINES	832710	505610	588	247179
IRON MINES	1883101	1443594	685	331307
COAL MINES	912225	732519	0	1017256
PETROLEUM AND GAS WELLS	18199381	6778859	4103	8458061
ASBESTOS MINES	598411	441471	2427	133237
OTHER NON-METAL MINES	1801812	1337964	2801	238073
SERVICES INCIDENTAL TO MINING	3736765	18319	2432	46143
MEAT PRODUCTS	7642969	738944	4390	413127
POULTRY PRODUCTS	1124192	15793	491	36752
FISH PRODUCTS	1763930	1294580	10084	391587
DAIRY PRODUCTS	4839711	235013	1686	158618
FRUIT AND VEGETABLE PRODUCTS	1805860	219018	4019	568596
FEED	2568513	195176	295	176444
FLOUR & BREAKFAST CEREALS	1155288	237225	743	56928
BISCUIT & BAKERY PRODUCTS	1851057	63080	311	65002
CONFECTIONARY PRODUCTS	921235	79963	6596	194722
SUGAR	851320	78163	861	10021
VEGETABLE OIL	863524	79862	3093	164525
MISCELLANEOUS FOOD	3301665	303617	17372	634930
SOFT DRINK	1370174	20631	102	31625
DISTILLERIES & BREWERIES	2256946	484461	421	310340
WINERIES	183531	1900	228	203077
TOBACCO & TOBACCO PRODUCTS	1443902	138042	738	45720
RUBBER FOOTWEAR	83539	7114	374	37167
TIRE,TUBE & OTHER RUBBER PRODUCTS	4697507	964541	63624	2071016
LEATHER	217277	42312	2630	123925
LEATHER FOOTWEAR	722415	49922	4001	421377
OTHER LEATHER PRODUCTS	309401	20090	1803	166988
YARN & CLOTH	1086769	98607	13578	719925
SYNTHETIC TEXTILES	1455138	198078	12454	710556
CARPET,MAT & RUG	674682	51418	1812	155376
TEXTILE BAGS & CANVAS PRODUCTS	165354	14078	742	55321
OTHER TEXTILES	1786105	513264	64262	1378451
HOSIERY AND KNITTING	1015109	16573	2040	332884
CLOTHING	4171878	256457	9488	1008254
SAWMILLS	5088136	2976384	37326	382599
VENEER,PLYWOOD,SASH & DOOR	2623445	498390	2864	246498
OTHER WOOD PRODUCTS	815454	223403	2826	61548
HOUSEHOLD FURNITURE	1447407	100300	4126	276530
OTHER FURNITURE	1375190	208183	3789	168989
PULP & PAPER	11868682	8157614	11235	752962
ASPHALT ROOFING PRODUCTS	271995	164642	40	17771
PAPER BOX & BAGS	2313927	130168	5235	380397

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TABLE E-1 .... CONTINUED
PRODUCTION, EXPORTS, RE-EXPORTS AND IMPORTS BY INDUSTRY, 1981

INDUSTRY	PRODUCTION	EXPORTS	REEXPORTS	IMPORTS
		(THOUSANDS OF DOLLARS)		
OTHER PAPER PRODUCTS	1558291	149821	6152	296817
PRINTING & PUBLISHING	6189035	219002	19166	874200
ENGRAVING & STEREOTYPING	384173	17023	2027	81443
IRON & STEEL AND FOUNDARIES	7541957	1597396	53782	1862451
STEEL PIPE & TUBE	1342922	344896	28815	426391
SMELTING & REFINING	6784136	4230993	29876	1845589
ALUMINUM ROLLING,CASTING & EXTRUDING	1144209	523533	8226	209379
COPPER & ALLOY ROLLING,CASTING & EXTRUDING	596617	276568	921	76640
OTHER METAL ROLLING,CASTING & EXTRUDING	591101	360125	3167	171421
BOILER & PLATE	831482	136530	12380	272295
FABRICATED STRUCTURAL STEEL	2768329	366450	10484	407494
METAL STAMPING	3782699	444879	43381	1093297
WIRE & WIRE PRODUCTS	1546845	281158	17543	823715
HARDWARD & CUTLERY	1072252	279993	30810	1038487
OTHER METAL FABRICATING	2714512	464605	51068	1177576
AGRICULTURAL MACHINERY & EQUIPMENT	1443423	834645	54539	2351091
INDUSTRIAL MACHINERY & EQUIPMENT	6025712	2203314	263299	5334195
COMMERICAL REFRIGERATION	1732967	849363	206514	2915205
AIRCRAFT & PARTS	2821031	1821660	222365	2402737
MOTOR VEHICLES	12891613	9318361	110395	8015480
MOTOR VEHICLE PARTS	4496966	2848201	408870	6509909
SHIPBUILDING	1107043	191726	9427	286895
OTHER TRANSPORTATION EQUIPMENT	1509439	394131	8556	413376
SMALL ELECTRIC APPLIANCES	425928	44945	4403	278691
MAJOR ELECTRIC APPLIANCES,RADIO AND T.V.	1374020	241230	21668	1615979
COMMUNICATION EQUIPMENT	3057774	1133301	95259	1730603
ELECTRICAL INDUSTRIAL EQUIPMENT	1935227	389005	33678	1271158
ELECTRIC WIRE & CABLE	1343876	149971	2671	139665
OTHER ELECTRICAL PRODUCTS	1534345	275311	11787	603697
CEMENT & LINE PRODUCTS	848498	133004	1302	77318
CONCRETE PRODUCTS	1776048	74246	452	19806
CLAY,STONE & REFRACTORY PRODUCTS	411944	70416	2141	382527
GLASS & GLASS PRODUCTS	863907	85263	3159	332393
OTHER NON-METAL MINERAL PRODUCTS	987987	199626	4085	224306
PETROLEUM REFINERIES	20652998	2337680	19074	1329604
OTHER PETROLEUM & COAL PRODUCTS	138621	65002	48	16327
MIXED FERTILIZERS	236936	171929	51	19002
PLASTIC & SYNTHETIC RESINS	1562482	333221	4835	554708
PHARMACEUTICAL	1429892	108411	50089	436932
PAINTS & VARNISH	902774	20730	1271	135853
SOAPS & CLEANING COMPOUNDS	1067371	52247	2090	124501
TOILET PREPARATIONS	638672	35914	3331	135750
INDUSTRIAL & OTHER CHEMICAL PRODUCTS	7972359	1891224	45880	2597740
SCIENTIFIC & PROFESSIONAL EQUIPMENT	1496798	437567	99506	2221727
LINOLEUM & COAT FABRIC AND MISC.	2856402	803835	66799	1531004
ELECTRIC POWER	10181083	1195295	0	21682

SOURCE: STATISTICS CANADA

TABLE E-2
PRODUCTION, EXPORTS, RE-EXPORTS AND IMPORTS, BY COMMODITY, 1981

COMMODITY	PRODUCTION	EXPORTS	RE-EXPORTS	IMPORTS
		(THOUSANDS OF DOLLARS)		
LIVE ANIMALS	5845352	234013	894	207659
GRAIN	6225872	4257885	3834	229138
UNPROCESSED MILK	2491614	0	0	66
FRUITS & VEGETABLES	1426654	147769	7183	792765
EGGS IN SHELLS	487416	22084	55	18626
OTHER AGRICULTURAL PRODUCTS	1544011	816974	12699	456492
SERVICES TO AGRICULTURE	390091	0	0	0
FORESTRY PRODUCTS	4643194	95034	154	93098
FISH LANDINGS	845411	162853	777	51408
HUNTING & TRAPPING PRODUCTS	72011	71953	3726	123665
IRON ORE & CONCENTRATES	1653319	1438856	0	317553
OTHER METAL ORES	6254862	3914444	3803	1899720
COAL	905875	732554	0	1017161
CRUDE MINERAL OILS	10244663	1837537	0	8225326
NATURAL GAS	5991964	3948254	0	766
NON-METAL MINERALS	1829345	1356604	6887	399559
SERVICES TO MINING	3937283	0	0	0
MEAT PRODUCTS	8630311	832278	4329	418530
POULTRY	1105577	6737	370	30933
MILK & CREAM	1736813	1994	2	581
BUTTER	488584	158	0	39
CHEESE	1093310	21445	309	85945
OTHER DAIRY PRODUCTS	1254460	185794	129	16823
FISH PRODUCTS	1550228	1274606	9768	345646
FRUIT & VEGETABLE PRODUCTS	2075924	258142	4516	698362
FEEDS	3063497	225748	70	208245
FLOUR & MEAL	760149	231358	134	25313
BREAKFAST CEREALS & BAKERY GOODS	2261176	64628	157	74077
SUGAR	829682	76115	781	7135
OTHER FOOD & FOOD BY-PRODUCTS	3873681	324492	26872	848648
SOFT DRINKS	1246353	4717	45	21897
DISTILLERY PRODUCTS	709995	358047	116	268486
BREWERY PRODUCTS	1444002	110799	35	27046
WINERY PRODUCTS	180376	962	219	202591
TOBACCO	355782	118264	144	8899
TOBACCO PRODUCTS	1068105	15052	336	32235
TIRES & TUBES	1201898	338010	8333	414825
OTHER RUBBER AND PLASTIC PRODUCTS	2750526	280813	13433	1010029
LEATHER	209134	41837	2614	121916
LEATHER FOOTWEAR	668530	35518	2643	405682
OTHER LEATHER PRODUCTS	212934	6668	907	138011
NATURAL MATERIALS YARN	108140	4783	764	152452
MAN-MADE MATERIALS YARN	1010020	171326	4321	395012
BROADWOVEN AND OTHER FABRICS	1373056	113183	23848	964994
KNITTED FABRICS	362400	7011	927	81312
CARPET PRODUCTS	708054	53641	1898	163146
OTHER TEXTILE PRODUCTS	1139662	98211	5365	404950
HOSIERY	216127	1562	105	26475
KNITTED WEAR	755113	5681	878	393792
CLOTHING & ACCESSORIES	3949247	257465	9206	855712
LUMBER AND TIMBER	3953352	3028386	39503	327243
PLYWOOD & VENEER	808620	205738	499	141951
OTHER WOOD FABRICATED PRODUCTS	3754271	541942	2702	194113
HOUSEHOLD FURNITURE	1609234	76604	2737	299913
OFFICE & OTHER FURNITURE	1206193	206640	1940	99313
PULP	4079723	3465992	224	84701
NEWSPRINT & OTHER PAPER	7470929	4777637	666	451116
PAPER PRODUCTS	4373740	226845	9251	675793
NEWSPAPERS,MAGAZINES & PERIODICALS	1168203	93156	1335	271810

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TABLE E-2 .... CONTINUED
PRODUCTION, EXPORTS, RE-EXPORTS AND IMPORTS, BY COMMODITY, 1981

COMMODITY	PRODUCTION	EXPORTS	REEXPORTS	IMPORTS
		(THOUSANDS OF DOLLARS)		
ADVERTISING,PRINT MEDIA	1815986	0	0	0
OTHER PUBLISHING PRODUCTS	3381089	119199	19109	642995
PIG IRON & STEEL	923865	446159	1603	219342
STEEL CASTING BARS,ROLLS & PLATES	4883550	745186	18965	1125390
STRUCTURAL SHAPES & PRODUCTS	2659598	678292	55362	784874
ALUMINUM PRODUCTS	2996869	1415717	16541	455878
COPPER PRODUCTS	1703604	792891	2227	206413
OTHER NON-FERROUS METAL PRODUCTS	3476595	2854859	14313	1272719
FABRICATED STRUCTURAL METAL PRODUCT	2822559	363827	4806	267094
WIRE & WIRE PRODUCTS	887839	130852	3266	179968
HARDWARE & TOOL PRODUCTS	1448796	307706	29437	1637443
PLATES,TANKS & BOILERS	880849	94731	3398	131155
OTHER METAL FABRICATED PRODUCTS	5197329	341423	31839	1082105
AGRICULTURAL MACHINERY & EQUIPMENT	1416977	835739	54743	2401022
INDUSTRIAL MACHINERY & EQUIPMENT	6270921	2588667	346281	6507121
COMMERICAL OFFICE & STORE EQUIPMENT	1580430	941368	237331	3273089
AIRCRAFT & AIRCRAFT PARTS	2346785	1767838	220860	2279167
AIRCRAFT REPAIR	550303	60605	1075	63594
PASSENGER CARS	6455413	5715907	25339	5267190
COMMERCIAL VEHICLES	5028760	3410778	28569	1885471
COMMERCIAL VEHICLE TRAILERS	531158	15112	1383	96231
MOTOR VEHICLE ENGINES,HARD. &PARTS	1851414	747346	131329	1973297
OTHER MOTOR VEHICLE ACCESS. & PARTS	4093502	3202497	441113	7037066
RAILWAY ROLLING STOCK	1039351	243682	3641	206602
SHIPS & SHIP PARTS	575992	140811	8644	215497
SHIP REPAIRS	438255	28600	0	31173
OTHER TRANSPORTATION EQUIPMENT	287575	75957	1150	124923
SMALL ELECTRICAL APPLIANCES	384480	14945	1873	365978
LARGE ELECTRICAL APPLIANCES	954934	86875	4358	391958
TELEVISIONS,RADIOS & RECORD PLAYERS	375661	93893	4026	1321473
COMMUNICATION EQUIPMENT	3291624	1319332	99024	1724073
INDUSTRIAL ELECTRICAL EQUIPMENT	2313325	457152	41557	1676164
WIRE & CABLE	1286454	124381	2346	112338
OTHER ELECTRIC PRODUCTS	1402904	122706	8479	534958
CEMENT	702897	89383	715	62181
LIME	118325	28097	0	2240
CONCRETE PRODUCTS	1678743	30185	140	3152
CLAY PRODUCTS	240162	11978	460	293149
REFRACTORY AND STONE PRODUCTS	183896	53203	1650	157920
GLASS & GLASS PRODUCTS	976279	92147	3032	373432
OTHER NON-METAL MINERAL PRODUCTS	909736	192276	3759	184098
GASOLINE	8023843	107630	0	34888
FUEL OIL	8660521	962759	13034	713403
LUBRICATING OILS AND GREASE	617002	7062	596	83103
PETROCHEMICAL FEED STOCKS	838170	135999	417	39607
OTHER PETROLEUM & COAL PRODUCTS	3781148	1873609	855	431999
FERTILIZERS	1325812	1044375	48	101732
PAINTS & RELATED PRODUCTS	1022704	10830	1373	145878
PLASTIC RESINS & BY-PRODUCTS	1814635	386317	5040	663256
PHARMACEUTICALS	1330592	91023	52672	434243
SOAPS & DETERGENTS	759652	15375	834	44786
TOILET PREPARATIONS & COSMETICS	719231	21490	2071	101219
INDUSTRIAL CHEMICALS	5833375	1568361	34093	1696851
OTHER CHEMICAL PRODUCTS	2278737	344154	16244	1239227
SCIENTIFIC EQUIPMENT	1526820	489640	122067	2687279
LINOLEUM & RELATED COATED FABRICS	149317	44817	1794	195625
OTHER MANUFACTURED PRODUCTS	2881088	757047	100083	1620302
ELECTRIC POWER	9846774	1198500	0	10166

SOURCE: STATISTICS CANADA

APPENDIX F

Commodity Aggregation Expressed in Terms of I-O Parameters

	COMMODITY	L-AGGREGATION I/O MODEL
1	Live Animals	1 - 5
2	Grain	7, 8
3	Unprocessed Milk	9
4	Fruits and Vegetables	11 - 14
5	Eggs in Shells	10
6	Other Agricultural Products	15 - 22
7	Services to Agriculture	23
8	Forestry Products	24 - 28
9	Fish Landings	29
10	Hunting and Trapping Products	30
11	Iron Ore and Concentrates	34
12	Other Metal Ores	32, 33, 35, 36
13	Coal	37
14	Crude Mineral Oils	38
15	Natural Gas	39
16	Non-Metal Minerals	41 - 50
17	Services to Mining	51
18	Meat Products	52 - 64
19	Poultry	65, 66
20	Milk and Cream	67, 68
21	Butter	69
22	Cheese	70
23	Other Dairy Products	71 - 74
24	Fish Products	75
25	Fruit and Vegetables	76 - 84
26	Feeds	85 - 89, 100, 103, 118
27	Flour and Meal	90, 91
28	Breakfast Cereals and Bakery Goods	92 - 95
29	Sugar	101
30	Other Food and Food By-Products	96 - 99, 102, 104, 106 - 113
31	Soft Drinks	114, 115
32	Distillery Products	116
33	Brewery Products	119
34	Winery Products	120
35	Tobacco	121
36	Tobacco Products	122, 123
37	Tires and Tubes	125 - 128
38	Other Rubber and Plastic Products	124, 129 - 138
39	Leather	139
40	Leather Footwear	140
41	Other Leather Products	141 - 144
42	Natural Materials Yarn	145, 146, 151, 161, 164
43	Man-Made Materials Yarn	154 - 157
44	Broadwoven and Other Woven Fabrics	147, 148, 152, 158, 159, 167, 168
45	Knitted Fabrics	181, 182
46	Carpet Products	169, 170
47	Other Textile Products	149, 150, 153, 160, 162, 163, 165, 166, 171 - 179

	COMMODITY	L-AGGREGATION I/O MODEL
48	Hosiery	180
49	Knitted Wear	183
50	Clothing and Accessories	184 - 189
51	Lumber and Timber	191
52	Plywood and Veneer	195
53	Other Wood Fabricated Products	190, 192 - 194, 196 - 203
54	Household Furniture	204, 208
55	Office and Other Furniture	205 - 207
56	Pulp	209
57	Newsprint and Other Paper	210 - 216
58	Paper Products	217 - 227
59	Newspapers, Magazines and Periodicals	228
60	Advertising, Print Media	232
61	Other Publishing Products	229 - 231, 233, 234
62	Pig Iron and Steel	235 - 237
63	Steel Castings Bars, Rolls and Plates	238 - 243
64	Structural Shapes and Products	244, 247 - 252
65	Aluminum Products	257, 264
66	Copper Products	254, 265, 266
67	Nickel and Other Non-Ferrous Metal Products	246, 253, 255, 256, 258 - 263, 267 - 271
68	Fabricated Structural Metal Products	276 - 279
69	Wire and Wire Products	287 - 291
70	Hardware and Tool Products	292 - 298
71	Plates, Tanks and Boilers	272 - 275, 300
72	Other Metal Fabricated Products	280 - 286, 301 - 313
73	Agricultural Machinery and Equipment	314, 315
74	Industrial Machinery and Equipment	316 - 325
75	Commercial Office and Store Equipment	326 - 329
76	Aircraft and Aircraft Parts	330 - 332
77	Aircraft Repair	333
78	Passenger Cars	334
79	Commercial Vehicles	335 - 337
80	Commercial Vehicle Trailers	338, 339
81	Motor Vehicle Engines, Hardware and Parts	340, 341, 344
82	Other Motor Vehicle Accessories and Parts	342, 343
83	Railway Rolling Stock	345 - 347
84	Ships and Ship Parts	348, 349
85	Ship Repairs	350
86	Other Transportation Equipment	351, 352
87	Small Electrical Appliances	353, 354
88	Large Electrical Appliances	299, 355, 356
89	Televisions, Radios and Record Players	357
90	Communication Equipment	358 - 364
91	Industrial Electrical Equipment	365 - 368
92	Wire and Cable	370, 371
93	Other Electric Products	369, 372 - 374
94	Cement	375
95	Lime	376
96	Concrete Products	377 - 379
97	Clay Products	380 - 382

	COMMODITY	L-AGGREGATION I/O MODEL
98	Refractory and Stone Products	383, 384
99	Glass and Glass Products	390 - 392
100	Other Non-Metal Mineral Products	385 - 389, 393
101	Gasoline	394, 395
102	Fuel Oil	396
103	Lubricating Oils and Grease	397
104	Petrochemical Feed Stocks	402
105	Other Petroleum and Coal Products	245, 398 - 401, 548
106	Fertilizers	403
107	Paints and Related Products	409
108	Plastic Resins and By Products	404 - 407
109	Pharmaceuticals	408
110	Soaps and Detergents	413
111	Toilet Preparations and Cosmetics	415
112	Industrial Chemicals	117, 411, 416 - 470, 473, 474, 479, 480
113	Other Chemical Products	105, 410, 412, 414, 471, 472, 475 - 478, 481 - 496
114	Scientific Equipment	497 - 503
115	Linoleum and Related Coated Fabrics	510, 511
116	Other Manufactured Products	504 - 509, 512 - 521

APPENDIX G

Industry Aggregation Expressed in Terms of
I/O Parameters and 1970 SIC Code

	INDUSTRY	L-AGGREGATION I/O MODEL	1970 SIC
1	Agriculture	1	001 - 021
2	Forestry	2	031 - 039
3	Fishing and Hunting	3	041 - 047
4	Base Metal Mines	4, 7	051 - 052, 059
5	Uranium Mines	5	057
6	Iron Mines	6	058
7	Coal Mines	8	061
8	Petroleum and Gas Wells	9	064
9	Asbestos Mines	10	071
10	Other Non-Metal Mines	11 - 14	073, 0793, 072, 0791, 0792, 0794, 0799, 083, 087
11	Services Incidental to Mining	15	096, 098, 099
12	Meat Products	16	1011
13	Poultry Products	17	1012
14	Fishing Products	19	102
15	Dairy Products	18	104
16	Fruit and Vegetable Products	20	103
17	Feed	21	106
18	Flour and Breakfast Cereals	22	105
19	Biscuit and Bakery Products	23, 24	1071, 1072
20	Confectionary Products	25	1081
21	Sugar	26	1082
22	Vegetable Oil	27	1083
23	Miscellaneous Food	28	1089
24	Soft Drink	29	1091
25	Distilleries and Breweries	30, 31	1092, 1093
26	Wineries	32	1094
27	Tobacco and Tobacco Products	33, 34	151, 153
28	Rubber Footwear	35	1624
29	Tire, Tube and Other Rubber Products	36 - 38	1623, 1629, 165
30	Leather Tanning	39	172
31	Leather Footwear	40	174
32	Other Leather Products	41, 42	175, 179
33	Yarn and Cloth	43, 44	181, 182
34	Synthetic Textiles	45	183
35	Carpet, Mat and Rug	51	186
36	Textile Bags and Canvas Products	53, 54	1872, 1871
37	Other Textiles	46 - 50, 52, 55	1851, 1891, 184, 1892, 1852, 1894, 188, 1893, 1899
38	Knitting Mills	56, 57	231, 2391, 2392
39	Clothing	58	243 - 249
40	Sawmills	59	251
41	Veneer, Plywood, Sash and Door	60, 61	252, 254
42	Other Wood Products	62 - 64	256, 258, 259
43	Household Furniture	65	261
44	Other Furniture	66 - 68	264, 266, 268
45	Pulp and Paper	69	271
46	Asphalt Roofing Products	70	272
47	Paper Box and Bags	71	273

	INDUSTRY	L-AGGREGATION I/O MODEL	1970 SIC
48	Other Paper Products	72	274
49	Printing and Publishing	73	286, 288, 289
50	Engraving and Stereotyping	74	287
51	Iron and Steel	75, 77	291, 294
52	Steel Pipe and Tube	76	292
53	Smelting and Refining	78, 79	295
54	Aluminum Rolling, Casting and Extruding	80	296
55	Copper and Alloy Rolling, Casting and Extruding	81	297
56	Other Metal Rolling, Casting and Extruding	82	298
57	Boiler and Plate	83	301
58	Fabricated Structural Steel	84, 85	302, 303
59	Metal Stamping	86	304
60	Wire and Wire Products	87	305
61	Hardware and Cutlery	88	306
62	Other Metal Fabricating	89 - 91	307, 308, 309
63	Agricultural Machinery and Equipment	92	311
64	Industrial Machinery and Equipment	93	315
65	Commercial Refrigerator, Office and Store Machinery and Equipment	94, 95	316, 318
66	Aircraft and Aircraft Parts	96	321
67	Motor Vehicles	97, 98	323, 324
68	Motor Vehicle Parts	99	325
69	Shipbuilding	101	327
70	Other Transportation Equipment	100, 102	326, 328, 329
71	Small Electric Appliances	103	331
72	Major Electric Appliances	104, 105	332, 334
73	Communication Equipment	106	335
74	Electrical Industrial Equipment	107	336
75	Electric Wire and Cable	109	338
76	Other Electrical Products	108, 110	3391, 333, 3399
77	Cement and Lime Products	111, 112	352, 358
78	Concrete Products	113, 114	354, 355
79	Clay, Stone and Refractory Products	115 - 117	351, 3591, 353
80	Glass and Glass Products	119	356
81	Other Non-Metal Mineral Products	118, 120	3599, 357
82	Petroleum Refineries	121	365
83	Other petroleum and Coal Products	122	369
84	Mixed Fertilizers	123	372
85	Plastic and Synthetic Resins	124	373
86	Pharmaceutical	125	374
87	Paints and Varnish	126	375
88	Soaps and Cleaning Compounds	127	376
89	Toilet Preparations	128	377
90	Industrial and Other Chemical Products	129, 130	378, 379
91	Scientific and Professional Equipment	131	391
92	Miscellaneous Manufacturing	132 - 127	392, 3991, 393, 3993, 397, 3992, 3994 - 3999

Appendix H

1980 SIC Industries Expressed in Terms of Input-Output Parameters

Industry	L-Aggregation
Meat and Poultry Products	16, 17
Fish Products	19
Fruit and Vegetable	20
Dairy Products	18
Flour, Prepared Cereal Food and Feed	21, 22
Vegetable Oil Mills (Except Corn Oil)	27
Bakery Products	23, 24
Sugar and Sugar Confectionery	25, 26
Other Food Products	28
Soft Drink	29
Distillery Products	30
Brewery Products	31
Wine Industry	32
Leaf Tobacco	33
Tobacco Products	34
Tire and Tube	36
Rubber Hose and Belting	35
Other Rubber Products	37
Plastic Products	38
Leather and Allied Products	39, 40, 41, 42
Man-Made Fibre and Filament Yarn	45
Spun Yarn and Woven Cloth	43, 44
Natural Fibres Processing and Felt Products	46, 50
Carpet, Mat and Rug	51
Canvas and Related Products	53
Other Textile Products	47, 48, 49, 52, 54, 55
Clothing	56, 57, 58
Sawmill, Planning Mill and Shingle Mill Products	59
Veneer and Plywood	60
Sash, Door and Other Millwork	61
Wooden Box and Pallet	62
Coffin and Casket	63
Other Wood	64
Household Furniture	65
Office Furniture	66
Other Furniture	67
Pulp and Paper	69
Asphalt Roofing	70
Paper Box and Bag	71
Other Converted Paper Products	72
Commercial Printing	73
Platemaking, Typesetting and Bindery	74
Primary Steel	75
Steel Pipe and Tube	76
Iron Foundries	77
Non-Ferrous Metal Smelting and Refining	78, 79
Aluminum Rolling, Casting and Extruding	80

Industry	L-Aggregation
Copper and Copper Alloy Rolling, Casting and Extruding	81
Other Rolled, Cast and Extruded Non-Ferrous Metal Products	82
Power Boiler and Heat Exchanges	83
Fabricated Structural Metal Products	84
Ornamental and Architectural Metal Products	85
Stamped, Pressed and Coated Metal Products	86
Wire and Wire Products	87
Hardware, Tool and Cutlery	88
Heating Equipment	89
Machine Shop	90
Other Metal Fabricating	91
Agricultural Implements	92
Commercial Refrigeration and Air Conditioning Equipment	94
Other Machinery and Equipment	93
Aircraft and Aircraft Parts	96
Motor Vehicles	97
Truck and Bus Body and Trailer	98
Motor Vehicle Parts and Accessories	99
Railroad Rolling Stock	100
Shipbuilding and Repair	101
Other Transportation Equipment	102
Small Electrical Appliances	103
Major Appliances (Electric and Non-Electric)	104
Electric Lighting	68, 110
Record Player, Radio and Television Receivers	105
Communication and Other Electronic Equipment	106
Office, Store and Business Machine	95
Electrical Industrial Equipment	107
Communications and Energy Wire and Cable	109
Other Electrical Products	108
Clay Products	115
Hydraulic Cement	111
Concrete Products	113
Ready-Mix Concrete	114
Glass and Glass Products	119
Abrasives	120
Lime	112
Other Non-Metallic Mineral Products	116, 117, 118
Refined Petroleum Products	121
Other Petroleum and Coal Products	122
Industrial Chemicals n.e.c.	129
Agricultural Chemical	123
Plastic and Synthetic Resins	124
Pharmaceutical and Medicine	125
Paint and Varnish	126
Soap and Cleaning Compounds	127
Toilet Preparations	128
Other Chemical Products	130
Scientific and Professional Equipment	131

Industry	L-Aggregation
Jewellery and Precious Metals	132
Sporting Goods and Toys	134
Sign and Display	136
Other Manufactured Products	133, 135, 137

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